BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF ENDORSING THE REGIONAL LIGHT RAIL TRANSIT (LRT) SYSTEM PLAN SCOPE OF WORK AND AUTHORIZING FUNDS FOR RELATED CONSULTING ENGINEERING SERVICES)	RESOLUION NO. 83-383 Introduced by the Joint Policy Advisory Committee on Transportation

WHEREAS, Through Ordinance No. 82-135, dated July 1, 1982, the Council of the Metropolitan Service District adopted the Regional Transportation Plan; and

WHEREAS, The Regional Transportation Plan identified a system of regional transitways; and

WHEREAS, The need exists to determine in detail the feasibility of these transitways for light rail service; and

WHEREAS, The adopted FY 1983 Unified Work Program identifies a Long-Range Transitway Plan - Phase I work element to be conducted cooperatively by Metro and Tri-Met; and

WHEREAS, A Scope of Work for the Regional LRT System Plan has been developed which identifies the need for consulting engineering services to supplement Metro and Tri-Met staff; and

WHEREAS, The Scope of Work estimates that these consulting engineering services will require up to $250,000; and

WHEREAS, Tri-Met has agreed to provide local match for this amount in the form of in-kind services devoted to the Regional LRT System Plan; and

WHEREAS, The Metro Regional Systems Planning Allocation was established by the Council of the Metropolitan Service District by Resolution No. 79-103, dated November, 1979; and

WHEREAS, Since that time, escalation has been accrued to this Regional Systems Planning Allocation and is available for allocation; now, therefore,

BE IT RESOLVED,

1. That the Metro Council endorses the Regional LRT Scope of Work, Chapter 1, Sections A-G, (dated December 1982) as a conceptual framework for defining a Regional LRT Plan.

2. That the Metro Council authorizes $250,000 of the Interstate Transfer regional reserve accrued from the escalation on the Metro Systems Planning allocation established in November 1979 be allocated to fund consulting engineering services for the Regional Light Rail Transit System Plan; providing that if the full $250,000 is not available, authorizes the balance from the Metro Systems Planning allocation.

3. That the Metro Council amends the Unified Work Program and the Transportation Improvement Program to reflect the authorization of $250,000 of the "Interstate Transfer regional reserve" to fund engineering services for the Regional LRT System Plan. These funds will be appropriated on an annual basis through the Unified Work Program. The FY 83 element is estimated at $170,000.

4. That this Regional LRT System Plan is consistent with the continuing, cooperative and comprehensive planning process and is hereby given positive A-95 Review action.

5. That the Metro Council authorizes the Metro Executive Officer to apply for, accept and execute grants and agreements as needed to fulfill this resolution.

6. That the TPAC Interagency Coordinating Committee define a study management structure, review the detailed scope of work and return with a recommendation for approval.

ADOPTED by the Council of the Metropolitan Service District this 27th day of January, 1983.

Cindy Banzer
Presiding Officer

NM/gl
7447B/327
01/14/83

REGIONAL LRT SYSTEM PLAN
SCOPE OF WORK

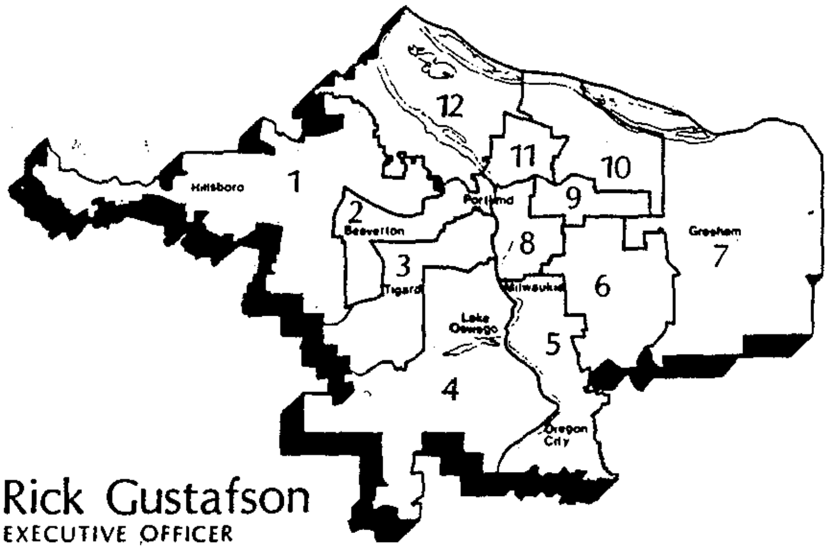
DECEMBER 1982

Metropolitan Service District

in Cooperation With

Tri-Met

METROPOLITAN SERVICE DISTRICT



Rick Gustafson
EXECUTIVE OFFICER

C O U N C I L

Cindy Banzer
PRESIDING OFFICER
DISTRICT 9

Bob Oleson
VICE-PRESIDING OFFICER
DISTRICT 1

Charles Williamson
DISTRICT 2

Betty Schedeen
DISTRICT 7

Craig Berkman
DISTRICT 3

Ernie Bonner
DISTRICT 8

Corky Kirkpatrick
DISTRICT 4

Bruce Etlinger
DISTRICT 10

Jack Deines
DISTRICT 5

Marge Kafoury
DISTRICT 11

Jane Rhodes
DISTRICT 6

Mike Burton
DISTRICT 12

FIRST PRINTING

REGIONAL LIGHT RAIL TRANSIT SYSTEM PLAN

SCOPE OF WORK

TABLE OF CONTENTS

I. THEME AND CONTEXT OF REGIONAL LONG-RANGE TRANSITWAY STUDIES

REGIONAL LIGHT RAIL TRANSIT SYSTEM PLAN STUDIES

SCOPE OF WORK

I. THEME AND CONTEXT OF REGIONAL LONG-RANGE TRANSITWAY STUDIES

A. Introduction: System vs. Corridor Studies

The Portland metropolitan area has taken a number of actions recognizing light rail transit (LRT) as a viable mode of transportation and an important investment for the region. These include:

- The Banfield LRT to Gresham is under construction.
- Engineering and environmental studies have been completed for an LRT facility to Beaverton.
- The Bi-State Task Force called for consideration of LRT as a means of increasing transit service and ridership between Clark County and Oregon.
- The cities of Milwaukie and Portland and several neighborhood associations have called for consideration of LRT in the McLoughlin Boulevard Corridor.
- I-205 (from Foster Road to the Columbia River) and Airport Way have been constructed with right-of-way reserved for future construction of LRT or a busway.
- Clackamas County has identified potential LRT routes in the McLoughlin Corridor between Milwaukie and Oregon City and in the Clackamas Town Center area.
- Washington County has identified an LRT facility in the vicinity of 185th Avenue as an extension from Beaverton to Hillsboro.
- The City of Portland Arterial Streets Classification Policy identifies "Regional Transitways" in a large number of corridors throughout the region.

This scope of work is intended to: a) present the full decision-making process leading to the ultimate construction of LRT in a particular corridor; and b) to define a comprehensive process to establish which corridors are appropriate for LRT construction and should, therefore, be adopted in an overall "Regional LRt System Plan."

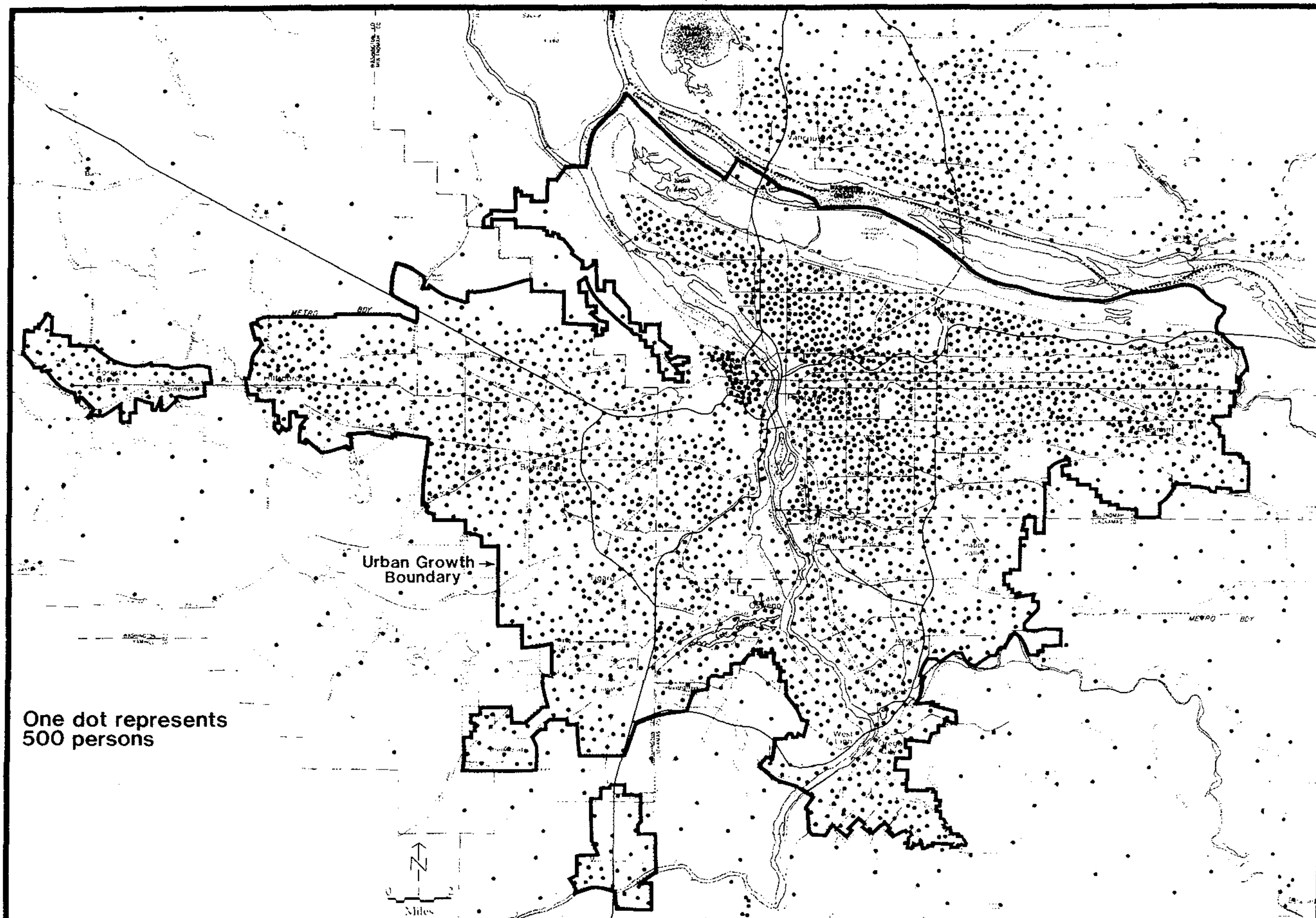
Generally, the LRT studies leading to construction of an LRT facility can be divided into two distinct steps, the first to define which corridors should be included in an overall regional LRT system; and, second, within a particular corridor, to determine the specific alignment and design for the LRT facility. This scope of work is directed at defining the objectives, tasks, products, cost, timing for the first step--to define the overall LRT system. Before initiating work to determine the alignment within a corridor, a similar Scope of Work will be prepared.

B. Background - Why LRT?

During the past 20 years, the Portland metropolitan area grew from 822,000 to 1,245,000 persons, or a 51 percent increase, with an 89 percent increase in employment, from 328,000 to 619,000 persons. This trend is expected to continue with population forecasted to increase another 40 percent by the year 2000 (to 1.7 million) and employment to increase another 57 percent (to 970,000). The spatial distribution of this population is shown on Figure 1, while the distribution of employment is shown on Figure 2. The vast majority of this year 2000 development in the four-county area will be within the Portland metropolitan area Urban Growth Boundary (UGB) and Clark County's Urban Services Boundary, as shown on Figure 3. In addition, based upon adopted local comprehensive plans, the development pattern will follow a fairly compact land use pattern.

With this growth throughout the metropolitan area, travel is expected to grow a commensurate 48 percent by the year 2000. Even with planned improvements, the regional highway system will be unable to accommodate that large an increase in travel and a substantial increase in transit usage is essential. Because of this, the Regional Transportation Plan (RTP), adopted July 1, 1982, calls for a major commitment to transit expansion with a 220 percent increase in ridership from 133,000 to 425,000 transit trips per day. In order to realize this ridership increase, the plan calls for a system of "Regional Transit Trunk Routes" to provide fast, reliable service between major subareas of the region. These trunk routes, as shown on Figure 4, would be located in each radial corridor providing high-quality service from downtown Portland to transit stations throughout the region. In addition, trunk service is proposed in the Highway 217 and I-205 circumferential corridors providing interconnections between suburban transit stations.

As a result of adoption of the RTP and local comprehensive land use plans, an important interrelationship between land use growth and transit expansion has been established. High density areas exist or are planned in downtown Portland, Beaverton, along Highway 217, Tigard, Milwaukie and around the Clackamas Town Center that are dependent upon major transit expansion to fully develop. The transit system, in turn, has been designed to include transit stations in these areas interconnected with high quality trunk routes. The result is high levels of ridership concentrated in these regional corridors (as shown in Figure 5) and, as such, good candidates for

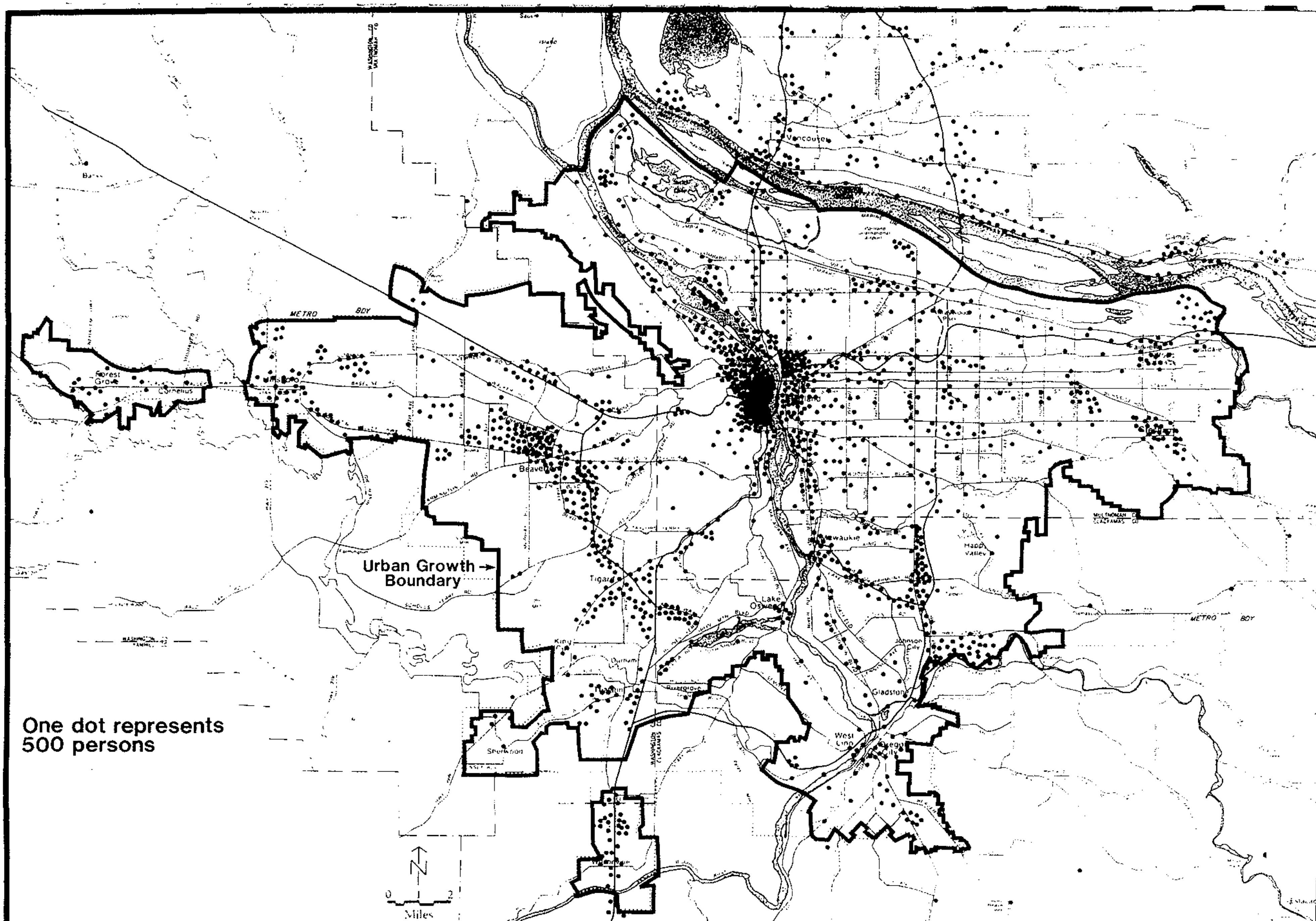


METRO

Regional Transportation Plan • July 1982

YEAR 2000 POPULATION

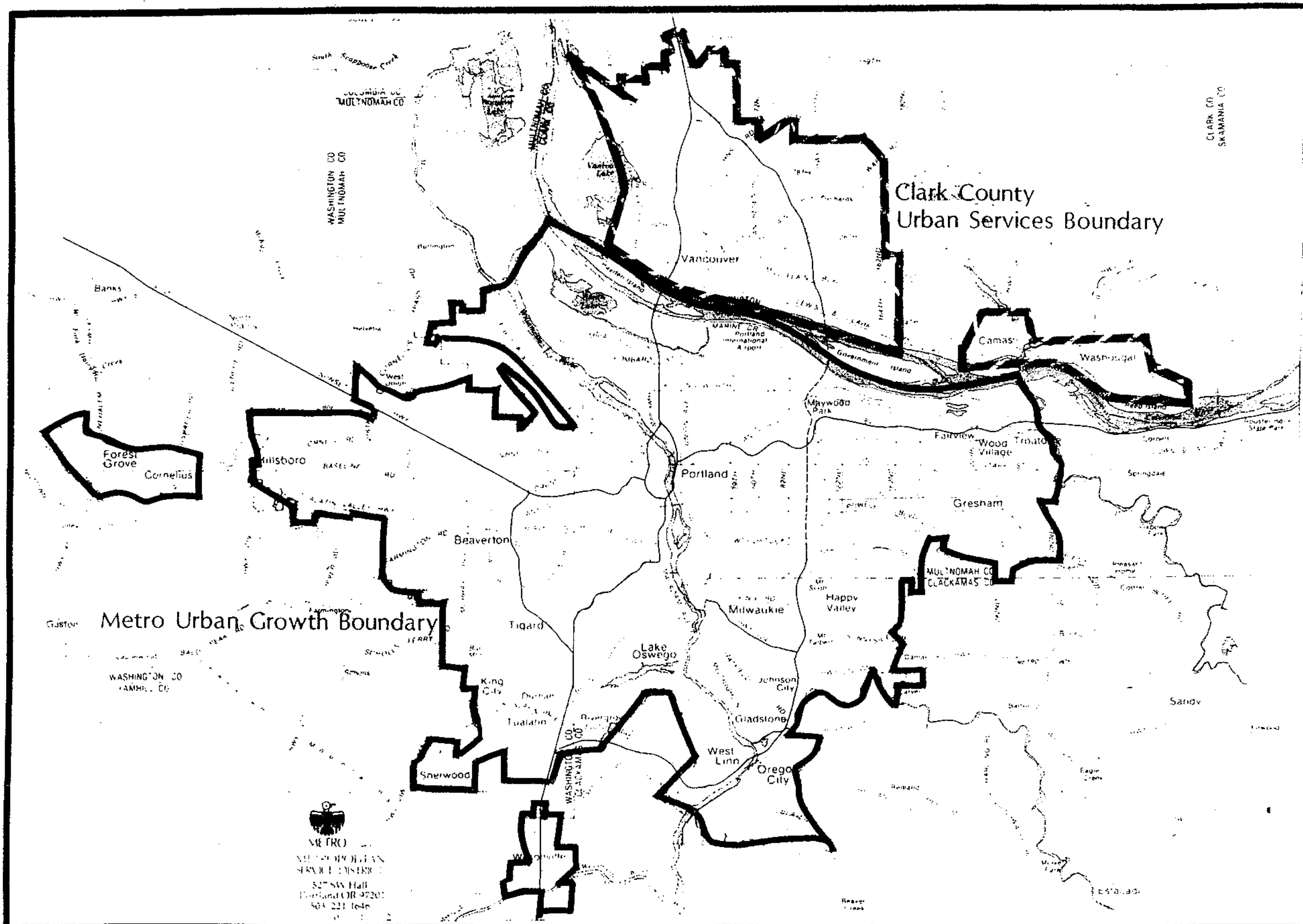
FIG. 1



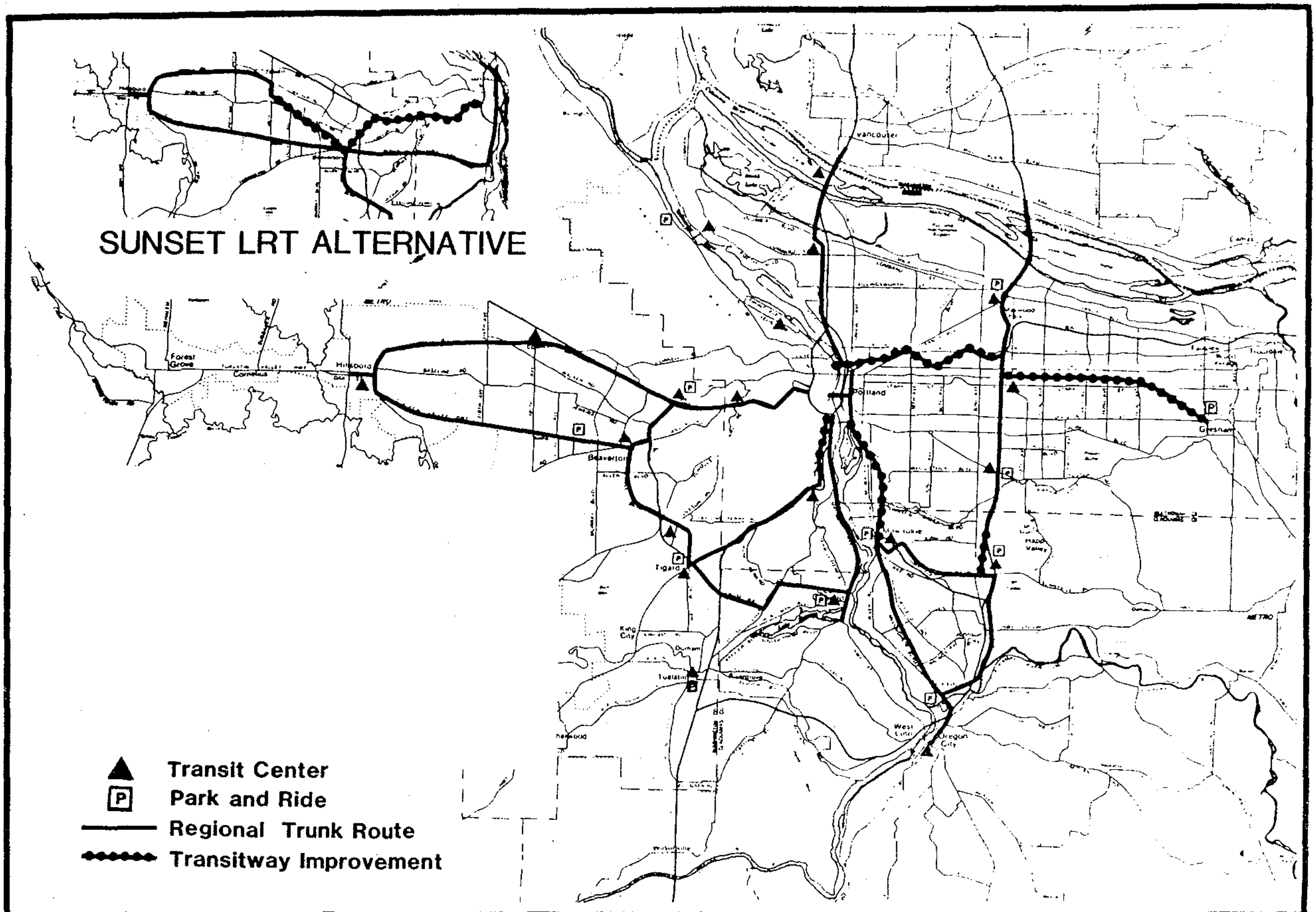
Regional Transportation Plan • July 1982

YEAR 2000 EMPLOYMENT

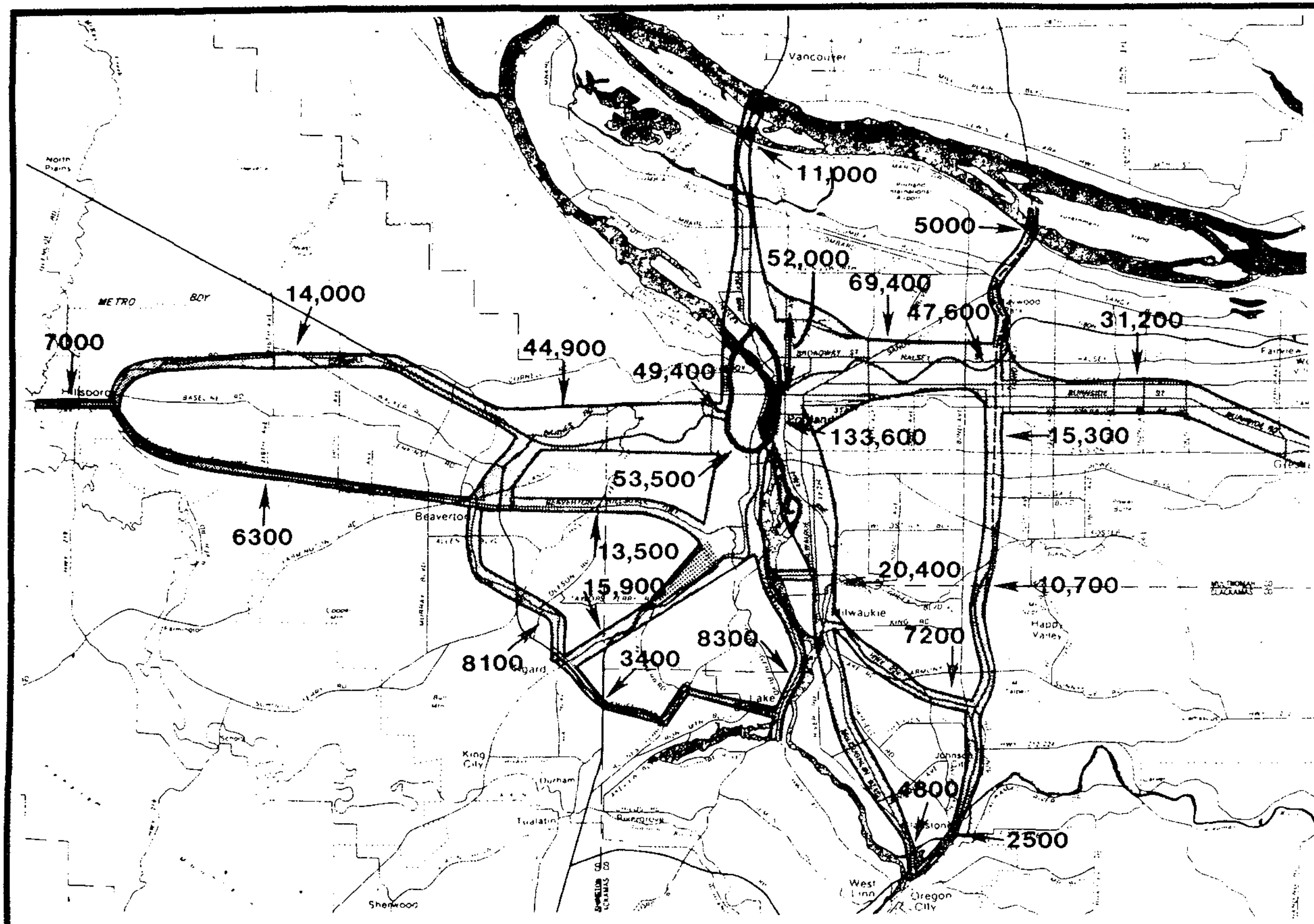
FIG. 2



REGIONAL LRT SYSTEM PLAN Scope Of Work	Urban Growth/Urban Services Boundary	Figure 3



REGIONAL LRT SYSTEM PLAN Scope Of Work	Regional Transit Trunk Routes	FIG. 4



REGIONAL LRT SYSTEM PLAN Scope Of Work	Major Transit Flows - Recommended Plan	Figure 5

construction of LRT. The Long-Range Regional Transitway System adopted in the RTP, shown on Figure 6, responds to these land use and ridership relationships.

The attractiveness of LRT from the rider's point of view is that transit service is provided in a clearly recognizable location, on a frequent basis, is generally fast with full or partial separation from traffic congestion and generally adheres more reliably to a schedule since congestion does not interfere. The attractiveness from the operator's point of view is that high capacity transit service can be operated more economically than bus service. This is because 310 passengers per two-car train can be carried with one operator rather than 105 passengers per articulated bus or 65 passengers per standard bus. Since personnel costs are 75 percent of the overall cost to operate bus service, use of larger LRT vehicles is a significant opportunity to reduce the cost of providing transit service. Furthermore, since the general public ultimately pays for transit service, savings in operating cost translates into savings for the taxpayer. In summary, LRT is a method of providing high capacity transit service at lower operating cost.

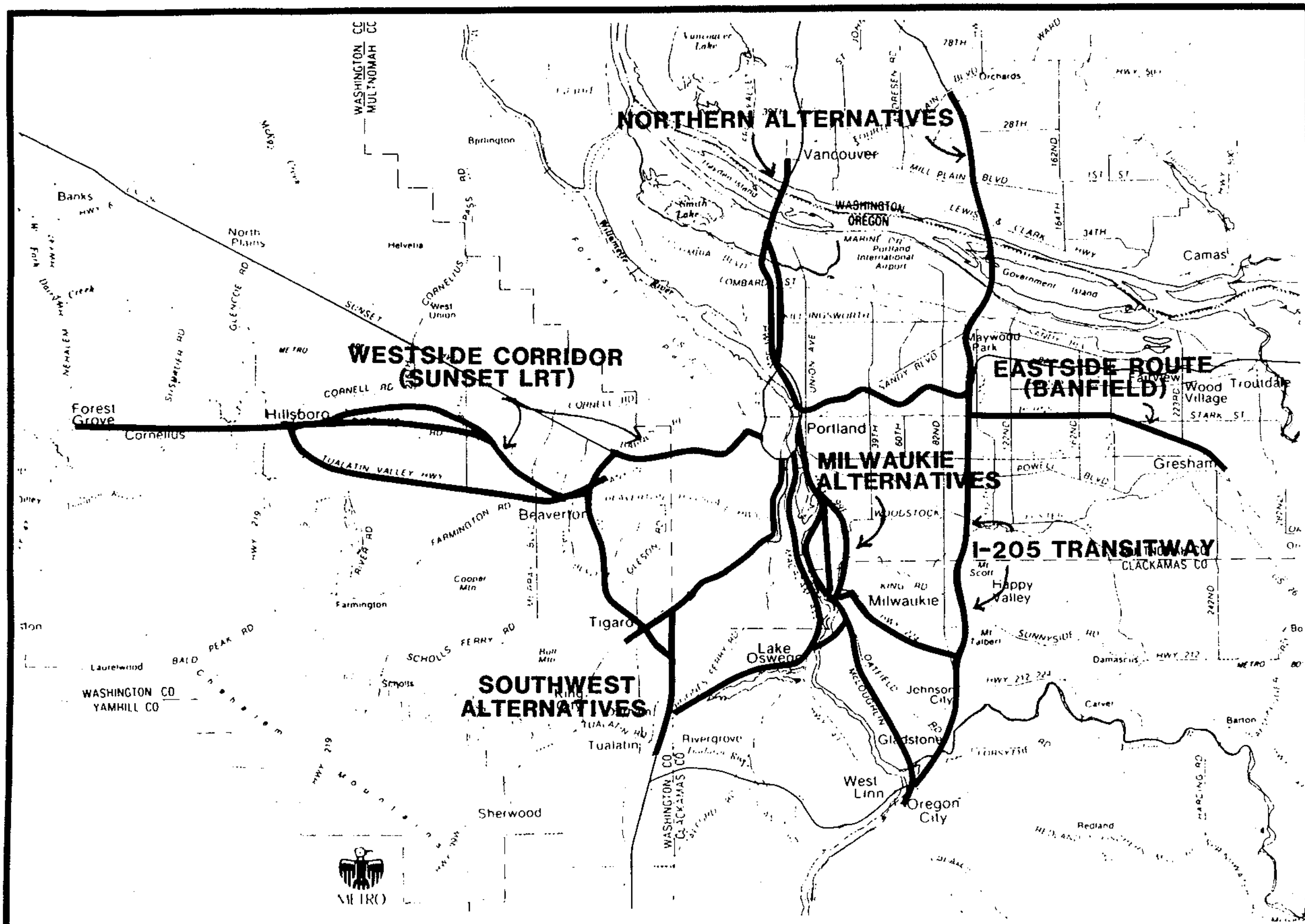
C. LRT Study Issue

Evaluation of the feasibility of LRT generally involves two types of assessment: 1) an economic analysis of costs and 2) an evaluation of the benefits and impacts realized by the community.

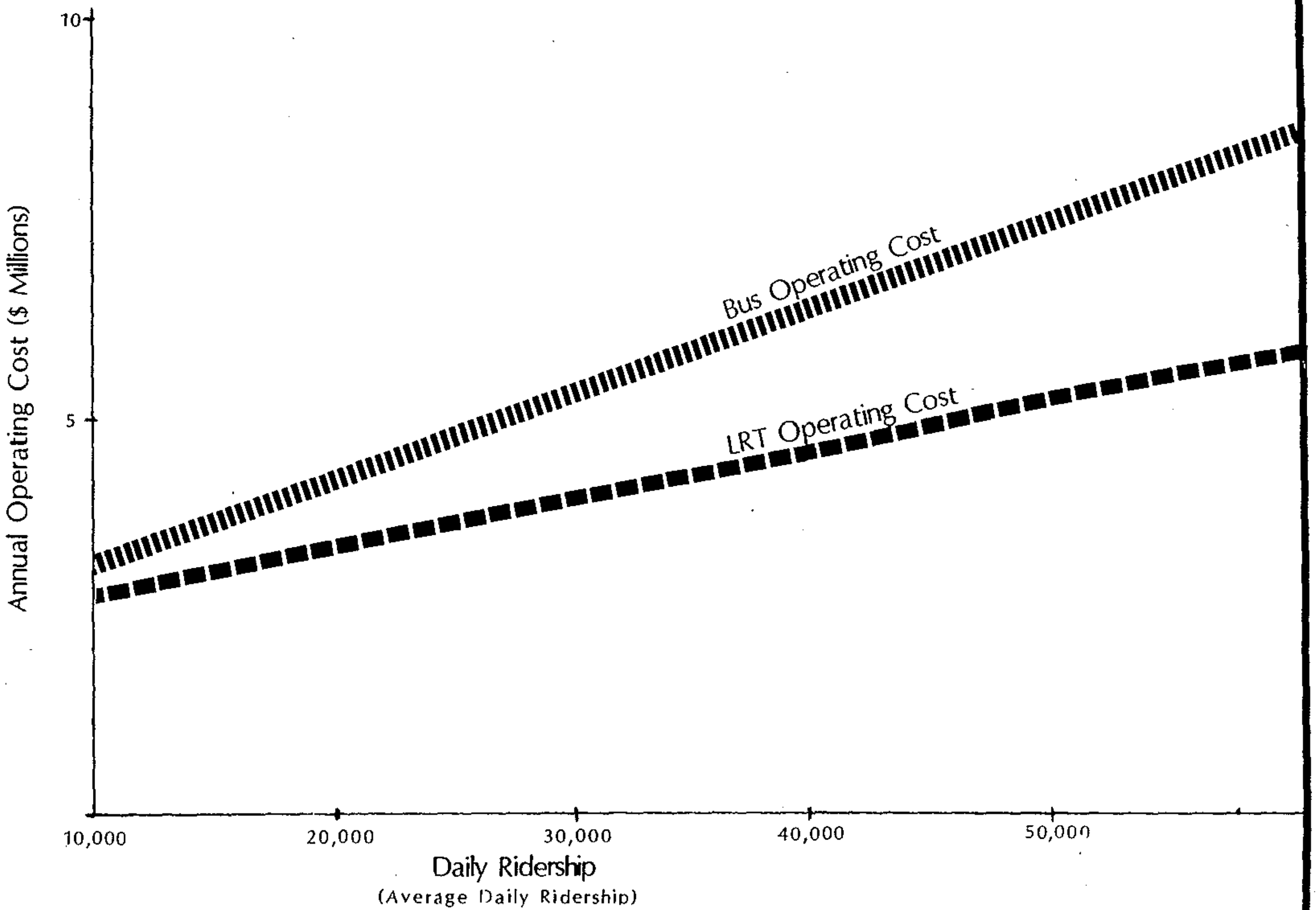
1. Economic Analysis - As shown in Figure 7, an LRT facility costs less to operate than an equivalent capacity bus service. Furthermore, as the number of riders increases, and, with it, the need for more transit capacity, the amount of savings increases dramatically. This savings is significant because these are yearly recurring operating costs and, therefore, the savings are realized as long as the service is provided.

   However, LRT clearly costs more to implement initially than bus service due to track and station construction, right-of-way acquisition and vehicle acquisition. Provision of bus service only requires purchasing the buses. As such, the financial question at hand in each of the corridors where LRT is under consideration is:

   > "Will there be sufficient savings in operating cost by expanding transit capacity with LRT rather than buses to justify the additional expenditure to build LRT?"



REGIONAL LRT SYSTEM PLAN Scope Of Work	Long Range Regional Transitway System	Figure 6



REGIONAL LRT SYSTEM PLAN Scope Of Work	Generalized Bus/LRT Operating Cost Relationship	Figure 7

To answer this question requires the following analysis for each corridor:

a. Operating Cost:

   1) Estimate the transit ridership potential for the corridor.

   2) Define bus and LRT alternatives to effectively serve the ridership with sufficient capacity to carry the number of expected riders.

   3) Estimate the annual operating subsidy of the bus and LRT alternatives for the corridor.

b. Capital Cost:

   1) Identify possible LRT routes in each corridor and determine the representative cost for construction and right-of-way acquisition; determine the LRT and feeder bus vehicle requirements to carry expected ridership; and determine vehicle cost for the LRT alternative.

   2) Determine vehicle requirements for the bus alternative to carry expected ridership and determine vehicle cost.

c. Capital Cost vs. Operating Cost Comparison:

   1) Convert bus and LRT total capital cost to "annualized" capital cost based upon appropriate interest rates and facility life span.

   2) Determine "additional" annualized capital cost of LRT above equivalent bus alternative.

   3) Determine annual operating subsidy "savings" for LRT alternative as compared to bus alternative.

   4) Compare LRT operating subsidy "savings" to "additional" capital cost; if savings exceed additional capital cost, LRT is economically feasible.

2. <u>Impact and Benefit Analysis</u> - Based upon the analysis described above, an LRT facility should be "economically" feasible to justify construction. If

LRT is not economically feasible--that is, if it is more economical to expand transit service through the use of buses--then construction of LRT should provide other significant benefits to the community to justify the expenditure of public funds. Even if LRT is economically feasible, it should not be built if it produces unacceptable community and environmental impacts. As such, it is necessary to thoroughly evaluate the environmental consequences of building LRT to determine whether there is a net gain for the community or a net loss. This impact and benefit evaluation must consider the following issues:

- air quality and energy consumption;
- noise and vibration;
- displacement and neighborhood intrusion;
- impacts on parks, schools, wildlife, water quality;
- impacts on historic sites;
- economic development impacts;
- impact on transit service quality - travel time; reliability; and
- impact on traffic.

D. Overall Decision Process

The Regional LRT System Plan is being developed as part of the Regional Transportation planning process which is initiated and guided by the RTP and which culminates in actual construction of facilities. The role this LRT system plan plays in the total context of regional transportation planning is decribed below. Major steps in this heirarchy of planning activities and the decision upon which each one is focused are:

General ↓

1. Regional Transportation Plan (RTP): Composition of Regional Transportation System, designation of transitway corridors;
2. Regional LRT System Plan: Evaluates potential corridors for inclusion in Regional LRT System;
3. Alternatives Analysis/Environmental Impact Statement (EIS): Determines LRT alignment, station location, and project impacts; and
4. Final Corridor Implementation Steps: Details alignment and station design, secures financing, final engineering and construction.

Specific

Each of the phases of planning and engineering work can be described by the issues upon which they will be focused and the specific decision to be reached from each phase of study. Similarly, the public involvement and regional decision-making will be different and involve different groups for each step in the study sequence.

This general process is described below:

1. REGIONAL TRANSPORTATION PLAN:

   Issue: Define the overall regional transportation system, what role transit in general will play in that system, and more specifically, definition of regional transit system routes and corridors and the potential ridership for each.

   Decision: What is to be the shape, focus, and nature of a regional transit system, and which corridors will have sufficient ridership to justify considering an LRT investment?

   Public Involvement/Decision-Making: Public input is received on the entire plan concept. The RTP has been adopted by Metro.

2. REGIONAL LRT SYSTEM PLAN:

   This step in the overall sequence of implementing a regional LRT system can be described in three parts:

   a. A determination as to whether or not the corridor should be included in the overall LRT system (based upon transit economics and other benefits);

   b. A determination as to whether or not the corridor should proceed to the next step of more detailed engineering and environmental analysis; and

   c. A determination of which of the alternatives are most promising and should be evaluated in detail in the next step.

   Each of these study phases, and the issues each addresses, are detailed below:

   a. Corridor Feasibility

      Issues: Should the corridor be included in the overall LRT system and what is the staging of corridors within the region?

      Decisions:

      - Is LRT economically feasible in the corridor?
      - If LRT is not economically feasible, are there other benefits to justify considering LRT?

- Are there unacceptable impacts that should prohibit LRT in the corridor?

Public Involvement/Decision-Making: Public input on overriding benefits or impacts of LRT within each corridor will be solicited, and a public hearing on preferences will be held.

Metro will adopt the overall LRT System Plan (amending the RTP). Tri-Met, ODOT and local jurisdictions will endorse and amend their plans as needed.

b. Initiation of Alternatives Analysis

Issue: Is the corridor of sufficient priority to proceed to the engineering and environmental analysis step (the next level of more detailed study)?

Public Involvement/Decision-Making: Public input on decisions by Metro and Tri-Met. ODOT and local jurisdictions endorse, UMTA approval and authorization to proceed to next step.

c. Define Alternatives to be Examined in Detail:

Issue: Of the broad range of alternatives examined thus far, which are the most promising to carry into more detailed corridor level studies?

Decision: Which alternatives can be eliminated as too costly, having too great an impact, or not adequately serving the corridor's ridership?

Added to the list of promising LRT alternatives will be the following bus alternatives (as required by UMTA's alternatives analysis procedures) to ensure adequate consideration of lower capital cost bus alternatives:

- Bus Service Expansion; and
- Bus Service Expansion with priority treatment and/or bus lanes.

Public Involvement/Decision-Making: Public input, Metro/Tri-Met decision, ODOT and local jurisdictions endorse, UMTA approval of alternatives to study.

3. ALTERNATIVES ANALYSIS/ENVIRONMENTAL IMPACT STATEMENT

Issue:

The alternatives analysis/EIS process involves a detailed look at:

a. determination of basic LRT alignments and station locations;
b. environmental consequences of project alternatives;
c. capital and operating costs;

Public input is involved in the detailed design of alternatives and in identifying environmental impacts.

Decision: Based upon a "Draft Environmental Impact Statement" presenting alternatives, the preferred mode of transportation (bus vs. LRT), alignment and stations will be selected.

Public Involvement/Decision-Making: Public input on alternatives to ensure that all impacts and considerations are identified. Public input on preferred alternative at public hearing. Metro/Tri-Met/ODOT/local jurisdictions endorse preferred alternative. UMTA approves preferred alternative, provides a funding commitment ("Letter of Intent") and authorize proceeding to the next step.

4. Final Corridor Implementation Steps:

The final steps in the implementation of an LRT corridor can be described as:

a. Preliminary Engineering and Final EIS;
b. Preparation of Final LRT Construction Plans;
c. Secure Financing for LRT; and
d. Construction of LRT

Each of these steps are described below:

a. Preliminary Engineering and Final EIS:

Issue: Detail LRT alignment station design and final identification of impacts of preferred alternative.

Decision-Making: Tri-Met, local jurisdictions endorse, UMTA approval.

b. Secure Financing for LRT:

<u>Issue</u>: Approve a financial plan ensuring and committing funds for construction and initial phases of LRT operation; apply for federal grants.

<u>Decision-Making</u>: Tri-Met, UMTA, and other parties to the financing plan (i.e., legislature, voters), to sign "full-funding contract."

c. Prepare Construction Plans for LRT:

<u>Decision</u>: Local jurisdictions issue building permits.

d. Construct LRT

<u>Issue</u>: Tri-Met authorizes construction contracts.

<u>Decision</u>: Tri-Met.

E. <u>System Planning: Products</u>

Products of the LRT System Analysis include:

1. Adoption of overall regional LRT Plan.
2. Designation of primary vs. secondary corridors.
3. Ranking of primary and secondary corridors, considering:
   - ridership
   - capital cost
   - transit operating efficiency
   - impacts
   - zoning and land use actions of local governments/development impacts and opportunities
4. Adoption of an LRT operations plan and staging plan for LRT improvements in Central Portland (Downtown and the inner-Eastside).
5. Definition and priority of corridor studies to pursue, including Phase II alternatives analysis/EIS or less rigorous corridor refinement studies.
6. Staging plan for bus, LRT and highway improvements for McLoughlin and Southwest Corridors.
7. Definition of highway congestion resolved by transit development in corridors.

8. Definition of needed actions by local jurisdictions--such as right-of-way protection and land use actions in station areas for primary and secondary corridors.

F. System Planning: Geographic Areas

In order to phase work so as to allow use of existing resources as much as possible, the system analysis is being divided into five geographic subareas. These subarea definitions correspond to work phases of the task descriptions which follow in Section III. These subareas are defined to be small enough to allow a manageable and focused study, yet large enough to consider the LRT interrelationships between corridors.

The subareas or phases of the total system analysis are shown on Figure 8, and described below:

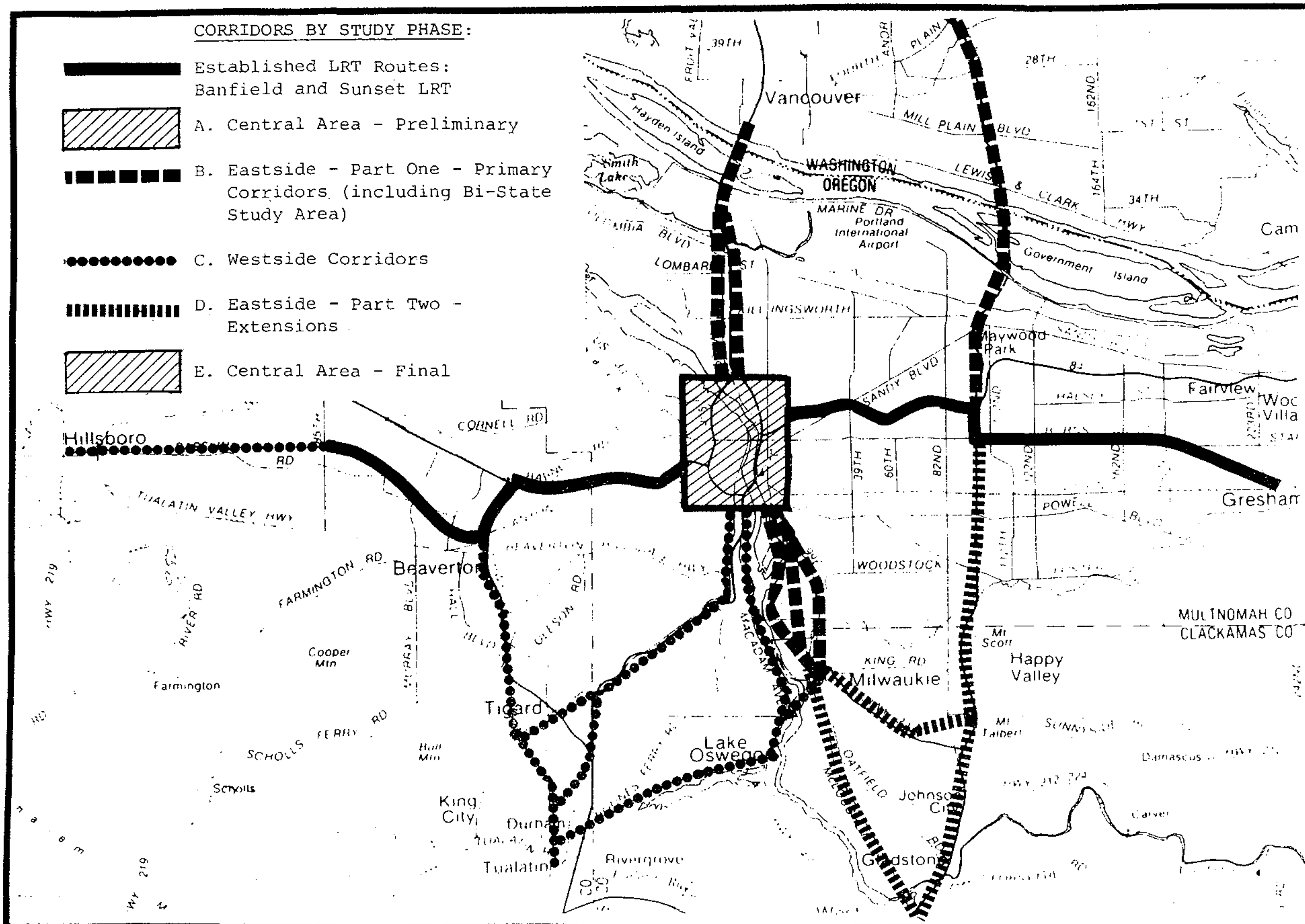
1. Central Area - The Central Area includes Downtown Portland and the inner-Eastside. Issues addressed in this area of high intensity of land use and economic activity center around engineering feasibility, traffic impact, and LRT system operation. The Preliminary Central Area analysis is addressed to identify constraints to the overall LRT system imposed by routing the primary corridors into or through this Central area.

2. Eastside - LRT System Plan - Part One - Primary Corridors: The portion of the region including Clark County, Washington, and the metropolitan areas east of the Willamette River will be addressed in two phases. The "Eastside - Part One Analysis" will look at primary routes as follows:

   a. Portland Central Area to Milwaukie (McLoughlin Corridor);

   b. Bi-State LRT, to be evaluated in two river crossing corridors (I-5 and I-205);

      - I-5/Interstate Avenue: Assuming a Columbia River LRT crossing on or near the I-5/Interstate Bridge;
      - I-205/Glenn Jackson Bridge: Assuming an LRT river crossing on the I-205 Bridge. The LRT alignment would follow I-205 north from the Gateway station of the Banfield LRT into Clark County, Washington;
      - Central Portland to Hayden Island: This northern corridor analysis will evaluate an Interstate Avenue versus an I-5 LRT alignment (this analysis will be factored into the Bi-State analysis noted above).



REGIONAL LRT SYSTEM PLAN Scope Of Work	Geographic Areas & Corridors by Study Phase	Figure 8

3. Westside LRT System Plan: Analyzing corridors and alignments for the region west of the Willamette River, this study phase will evaluate the following:

   a. The Barbur Corridor, including an I-5 and Barbur Boulevard alignment;

   b. A Macadam Avenue alignment, serving the Johns Landing/Corbett neighborhoods, and an extension along the Willamette River to Lake Oswego;

   c. An alignment paralleling Highway 217 from Central Beaverton's Transit Station to the Tigard Transit Station, and south from there to Tualatin;

   d. A circumferential connection between Tualatin and Lake Oswego (with and without connections across the Willamette River to Milwaukie); and

   e. Taking off where decisions of the Westside Corridor Project ended, an LRT extension to Hillsboro from the terminus of the Sunset LRT.

4. Eastside LRT System Plan - Part Two - Extensions: This phase of study will evaluate extensions to the primary LRT routes decided upon in "Eastside - Phase I" (#2 above). These extensions are primarily in Clackamas County, and include:

   a. Extension of Milwaukie Light Rail to:
      - Lake Oswego (across Willamette River);
      - Oregon City; and
      - Clackamas Town Center.
   b. Extension of LRT South from the Banfield LRT Gateway Station along I-205 to the Clackamas Town Center;
   c. Extension of LRT from Clackamas Town Center south along I-205 to Oregon City.

5. Central Area - Final: With the same study area as Central Area - Preliminary (#1 above), this phase of study will use the detailed corridor information developed in earlier phases of study to develop a finalized Downtown LRT routing and operations plan.

6. LRT System Staging and Priorities: Based upon the relative cost-effectiveness of LRT in each corridor and the need for transit capacity, the overall priorities and staging plan for the regional system (including the staging of each corridor and additional construction in the Central Portland area) will be defined.

G. <u>System Planning: Schedule and Corridor Status</u>

Corridors to be evaluated as part of LRT System Analysis have all been identified previously in the RTP as shown on Figure 6. The next step for each of these is the determination of economic efficiency or other rationale for including each corridor in the overall regional LRT system. This determination, as part of the Regional LRT System Plan, is scheduled for FY 1983 and FY 1984.

The specific status of each of the corridors considered as part of the overall Regional LRT System is listed below:

·<u>Banfield LRT</u>:

- RTP step complete.
- System Planning step complete.
- Alternatives Analysis/EIS step complete.
- Final Corridor Implementation steps are underway, with completion expected in 1985.

·<u>Westside Corridor</u>:

- RTP step complete.
- System Planning step complete.
- Alternatives Analysis/EIS step nearing completion and selection of a preferred alternative is underway.
- The Final Corridor Implementation step of Final EIS and Preliminary Engineering should begin in fiscal year 1984, pending UMTA funding approval.

·<u>Southern Corridor</u>:

- RTP step complete.
- System Planning step to be completed as part of the Regional LRT System Plan, with completion of this phase in fiscal year 1983.
- If the Southern Corridor were determined to be the next priority corridor in the region, the alternatives analysis and DEIS process could begin in fiscal year 1984, followed by Final EIS and engineering phases.

·<u>I-5/North Corridor</u>:

- RTP step complete.
- This corridor has been initiated into the "System Planning" step (Part of this Regional LRT

Plan). This step is scheduled for fiscal year 1983.

- The alternatives analysis and DEIS process could begin in fiscal year 1984 at the earliest if established by the region as a top priority corridor.

•<u>I-205/North Corridor</u> (Gateway North to Vancouver):

- RTP step complete.
- This corridor has been included in the "System Planning" step (Part of this Regional LRT Plan), which is scheduled for completion in fiscal year 1983.

•<u>I-205/South Corridor</u> (Gateway South to Oregon City):

- RTP step complete.
- This corridor has been included in the "System Planning" step (Part of this Regional LRT Plan) which is scheduled for completion in fiscal year 1984 or 1985.

•<u>Barbur</u>:

- RTP step complete.
- Initiated into the "System Planning" step, (Part of this Regional LRT Plan), scheduled for completion in fiscal year 1984.

•<u>Macadam/Oswego</u>:

- RTP step complete.
- Corridor initiated into the "System Planning" step, Part of this Regional LRT Plan, scheduled for completion in fiscal year 1984.

•<u>West Circumferential</u>:

- RTP step complete.
- Corridor included in the "System Planning" step, Part of this Regional LRT Plan, due to be completed in fiscal year 1984.

•<u>Milwaukie Extensions</u> (Milwaukie to Clackamas Town Center, Oregon City and Lake Oswego):

- RTP step complete.
- These corridors have been included in the "System Planning" step, Part of this Regional LRT Plan, due to be completed in fiscal year 1984 or 1985.

Central Area:

- RTP identifies suitable streets for LRT.
- Morrison/Yamhill LRT cross-mall is soon to be under construction - System, DEIS, and Final Implementation steps complete.
- The following alignments will be included in the preferred alternative Westside Corridor:
  - Extension of Morrison/Yamhill LRT streets to 18th;
  - Transit Mall LRT alignment connecting to Banfield and Sunset; and
  - Columbia and 18th connections to Mall and cross-mall from Sunset LRT.
- Identification of additional LRT streets needed as part of the six-corridor radial system serving Downtown will be included in the "system planning" step, as part "A" and part "E" of this Regional LRT Plan. (Part A being a preliminary alignment plan, finalized in Part E at the completion of studies for each radial corridor.)

H. System Planning: Organizational Structure

The Regional LRT Study will rely on the organizational structure depicted on Figure 9 to develop and adopt a Regional LRT Plan. This organizational structure is discussed below in four parts: (1) the Regional Decision Process; (2) the Corridor Input Process; (3) the Regionwide Citizens Review Committee; and (4) the Division of Technical Staff Responsibilities.

1. The Regional Decision Process

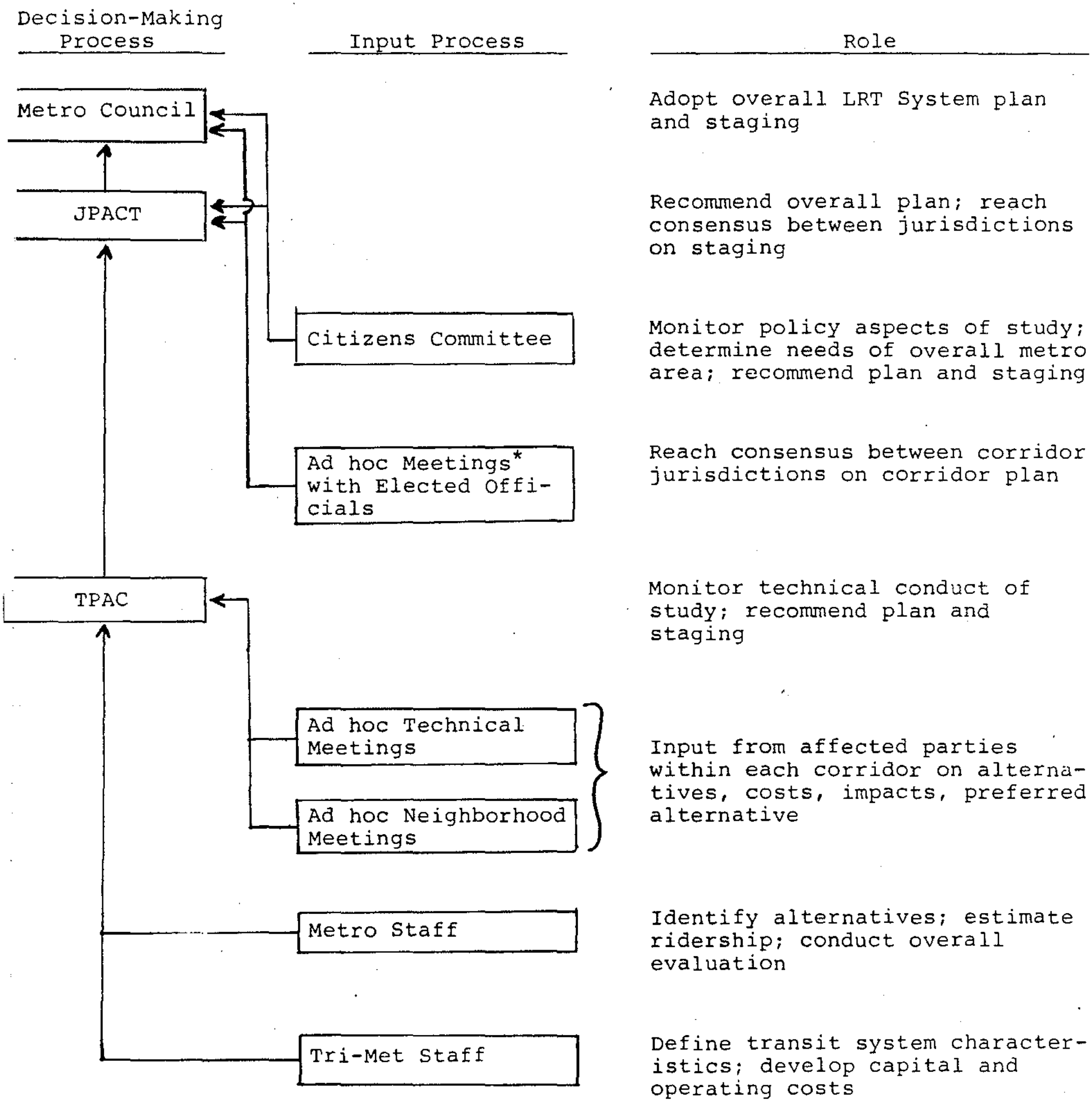
For the region as a whole, the established Transportation Planning structure sponsored and supported by Metro will be the basis of developing a regional consensus and regional approval of the Regional LRT System Plan. The major bodies involved in this are:

a. The Metro Council: This elected regional council will provide the final regional approval for the plan, and amend the RTP accordingly.

Figure 9

Regional LRT Studies

Organizational Structure



*The Bi-State Policy Advisory Committee will provide this forum for alternatives crossing the Columbia River (Interstate Avenue, I-5 and I-205).

b. Joint Policy Advisory Committee for Transportation (JPACT): JPACT will provide elected official review and adoption of the plan focusing on issues of the overall system and on staging of corridors within the region and their associated improvements in the Central area. JPACT has representation from all cities and counties throughout the region. JPACT will be the primary body used for reaching a regional consensus on LRT plan issues.

c. Transportation Policy Alternatives Committee (TPAC): TPAC will provide coordination, guidance and monitoring of the technical aspects of the Regional LRT Plan development, and will forward recommendations on the regional system and staging plan to JPACT.

2. The Corridor-Level Input Process

While the Metro Council, JPACT and TPAC will provide the decision process for the Plan as it affects the region as a whole, a smaller group will provide the technical, public and elected official review of issues which affect a specific corridor, such as LRT alignment impacts and the acceptability of one alignment within a corridor over another. These groups are:

a. Ad Hoc Meetings of Elected Officials: For each particular corridor, the Metro Executive Officer will sponsor meetings with elected officials of affected jurisdictions, so that a forum to reach a consensus on issues within that corridor exists. These ad hoc meetings will be called on an as-needed basis prior to any TPAC/JPACT/Metro decision.

In addition to affected jurisdictions, it is expected that the Tri-Met Board of Directors and the Metro Council be represented at these meetings, so as to forge a consensus between local and regional issues prior to JPACT/Metro Council adoption of the Plan. These are intended to ensure that affected jurisdictions and implementing agencies are confortable with provisions of the LRT plan, to provide feedback during plan development, and to ease eventual incorporation of the LRT plan into local comprehensive plans and Tri-Met's TDP.

b. Ad Hoc Technical Meetings: As with the ad hoc elected official meetings, this group is used to receive input from affected parties within each corridor on alternatives, costs, impacts, and a preferred alternative, if any. This group will be used to forge a technical consensus on issues within each corridor.

c. Ad Hoc Neighborhood Meetings: Within each corridor, meetings will be held with affected neighborhoods, allowing input of issues and concerns peculiar to that neighborhood.

3. Regional Citizens Committee: To guide and monitor policy aspects of the study, and to provide citizen input on the overall needs of the metropolitan area, a special Citizens Committee for the Regional LRT System Plan is recommended. Representatives on this Committee would be appointed as follows:

Appointing Body:	Number of Positions:
• Tri-Met Board	3 positions
• Metro Council	3 positions
• Metro Executive Officer	3 positions
• JPACT	5 positions (one each for the City of Portland, Multnomah County, Clackamas County, Clark County and Washington County)
Total	14 positions

4. Division of Technical Responsibilities

The Regional LRT System Plan will be undertaken as a cooperative effort of Metro and Tri-Met, with the assistance and support from the Regional Planning Council of Clark County.

Other jurisdictions will be involved in the review of this work through Ad Hoc Corridor meetings and the TPAC and JPACT committees of Metro. The Metro Council will also review and adopt final plan responsibilities.

Areas of responsibility for each of the major contributors--Tri-Met and Metro--are discussed below.

a. Metro Responsibilities

In production of the Regional LRT System Plan, Metro will have prime responsibility in:

- Production of year 2000 travel forecasts, producing summaries of transit ridership for each alternative, traffic volumes, and Origin-Destination data;

- Identification of significant environmental or community impacts;
- Compilation of impact and cost data into overall project evaluation; and
- Public involvement including neighborhood input and citizens committee.

b. Tri-Met Responsibilities

Tri-Met will be responsible for the following:

- Transit network alternative designs as necessary to evaluate various segments proposed as part of the Regional LRT System Plan;
- Development of unit operating cost factors and a standardized methodology for determining cost implications of alternatives;
- Development of unit capital costs for major components of an LRT alignment;
- Conceptual engineering and capital cost estimates for each major alignment evaluated, including supervision and management of possible consultant tasks for specialized engineering skills; and
- Bus and LRT operating analysis as necessary to resolve corridor feasibility issues.

Specific engineering tasks to be completed by Tri-Met staff and reviewed by Banfield LRT project engineers are:

(1) Subgrade design--planimetric maps, profiles and typical cross-sections;
(2) Facilities design--track location;
(3) Station and park and ride design;
(4) Support facility location and design;
(5) Construction requirements and capital cost estimates; and
(6) Infrastructure assessment.

II. SYSTEM PLANNING: OBJECTIVES/ISSUES BY AREA

II. SYSTEM PLANNING: OBJECTIVES/ISSUES BY AREA

The LRT Systems Study is divided into five study phases--each relating specifically to a subarea. Each of these study phases has specific objectives and specific issues which need resolution. For each study phase, the issues and objectives are defined below:

A. Central Area LRT System - Preliminary

This phase of the study will address the ability of Downtown Portland and the inner-Eastside to handle six LRT corridors (the Banfield, Sunset, Barbur, McLoughlin, I-5 North and Macadam). The objectives of the Preliminary Central Area Study are:

- Development of a six-corridor LRT operations plan for Central Portland;
- Identification of approaches to Downtown for each corridor;
- Routing/feasibility and need for inner-Eastside LRT route.

The Central area is the most critical portion of the LRT system since it involves routing each of the radial corridor LRT routes into and through the most dense area in the region. As such, the feasibility of operating LRT in the downtown area is a prerequisite for considering LRT in any additional corridor. However, by necessity, the downtown analysis must be conducted in two steps. Initially, a six corridor system will be examined based upon very preliminary ridership estimates and, therefore, very preliminary train frequencies in the various corridors. This preliminary assessment will establish the degree of difficulty of routing six corridors into and through Downtown and, therefore, whether or not it is reasonable to proceed with LRT feasibility studies in the individual corridors. Later, based upon detailed ridership and operations analysis in each corridor, the final central area operations and staging plan will be established (Section E).

B. Eastside LRT System - Part One - Primary Corridors

The Eastside LRT System Plan will be divided into two parts. Part One considers "Primary" Eastside Corridors including addressing a number of issues directly related to maintaining progress on the McLoughlin Corridor improvements and Bi-State questions. Other issues, such as the feasibility of McLoughlin Corridor LRT extensions south of Milwaukie and the feasibility of I-205 LRT routes not related to the Bi-State question, will be resolved in Part Two. Patronage studies, transit efficiency studies and capital cost estimates will be developed to answer two basic questions for the Bi-State and Portland to Milwaukie (McLoughlin) corridors:

- Is the corridor economically justified for LRT; and

- What are the most reasonable alignment(s) to consider further within that corridor?

Specific issues to be addressed in these Eastside Part One Studies include:

1. McLoughlin LRT Feasibility and Alignments (see Figure 10):

    - Is LRT economically feasible in the corridor?
    - Which of the three routes shown on Figure 10 should be examined further in design and impact studies if LRT is feasible?
    - Need for connection of LRT to downtown vs. Eastside.
    - Develop a staging plan for both transit and highway improvements planned for the corridor.

2. I-5 vs. Interstate Avenue LRT Assessment: Are both routes between the Coliseum and Hayden Island (illustrated on Figure 11) feasible, or should one be dropped due to unacceptable cost or impact?

3. Relationship between corridors, particularly between I-5 North and McLoughlin Boulevard corridors, with and without Central Eastside Connector as shown on Figure 12.

4. Columbia River Crossing: I-5 or I-205:

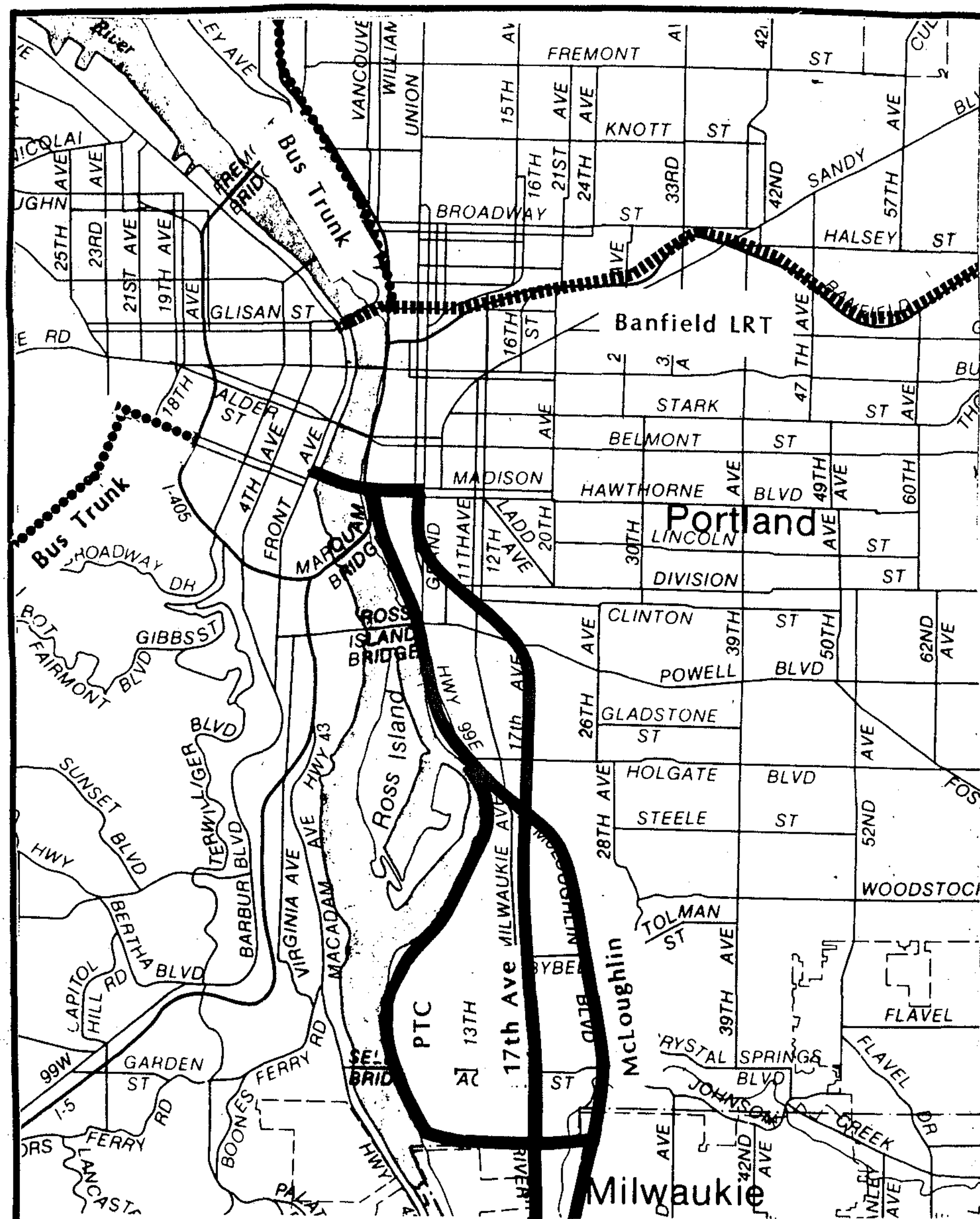
    - Economic feasibility and route for Columbia River crossing: I-5 vs. I-205.
    - Economic feasibility of LRT and route for non-river crossing corridor: I-5 to Hayden Island; I-205 to airport.

    The four major system alternatives to be reviewed are shown on Figure 13.

C. <u>Westside LRT System</u>

Major issues addressed by the Westside LRT systems analysis would be:

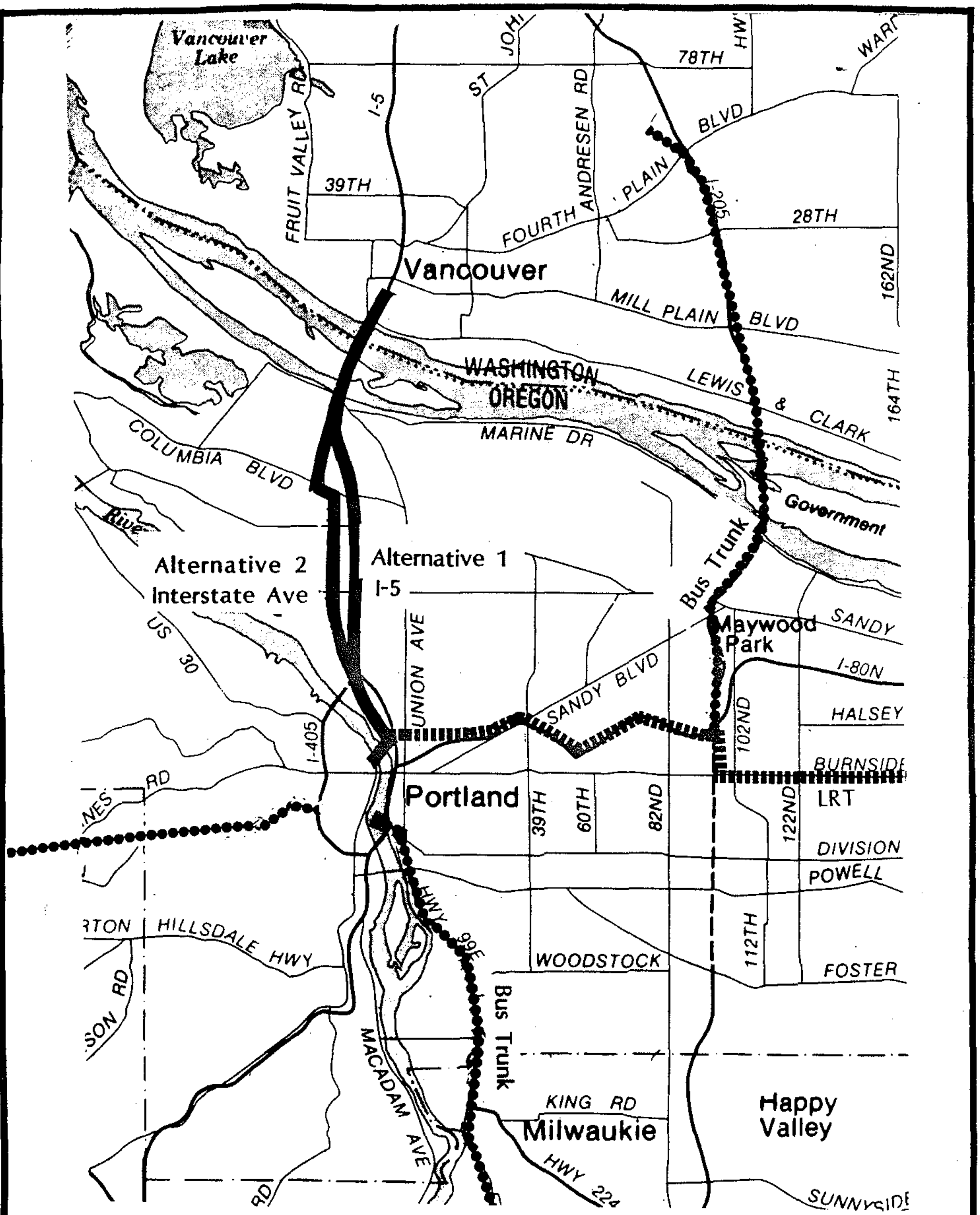
1. Sunset LRT to Hillsboro: Relating to ongoing Westside Corridor decisions, determine the feasibility of LRT extension to Hillsboro.



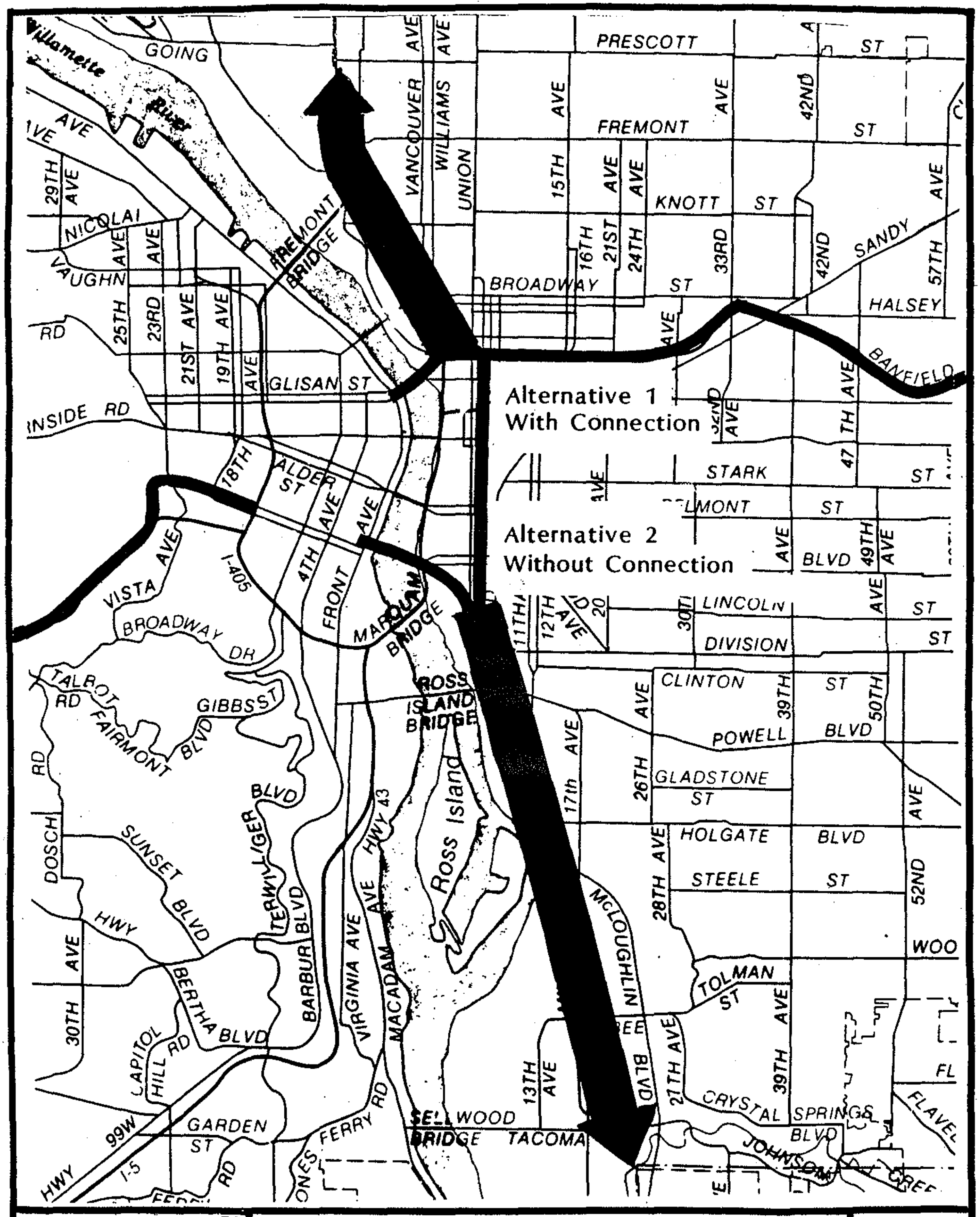
REGIONAL LRT SYSTEM PLAN
Scope Of Work

McLoughlin Corridor Alternatives

Figure 10



REGIONAL LRT SYSTEM PLAN Scope Of Work	North Corridor Alternatives	Figure 11



REGIONAL LRT SYSTEM PLAN Scope Of Work	Inner-East Side Connection	Figure 12

I-5 Corridor Crossing

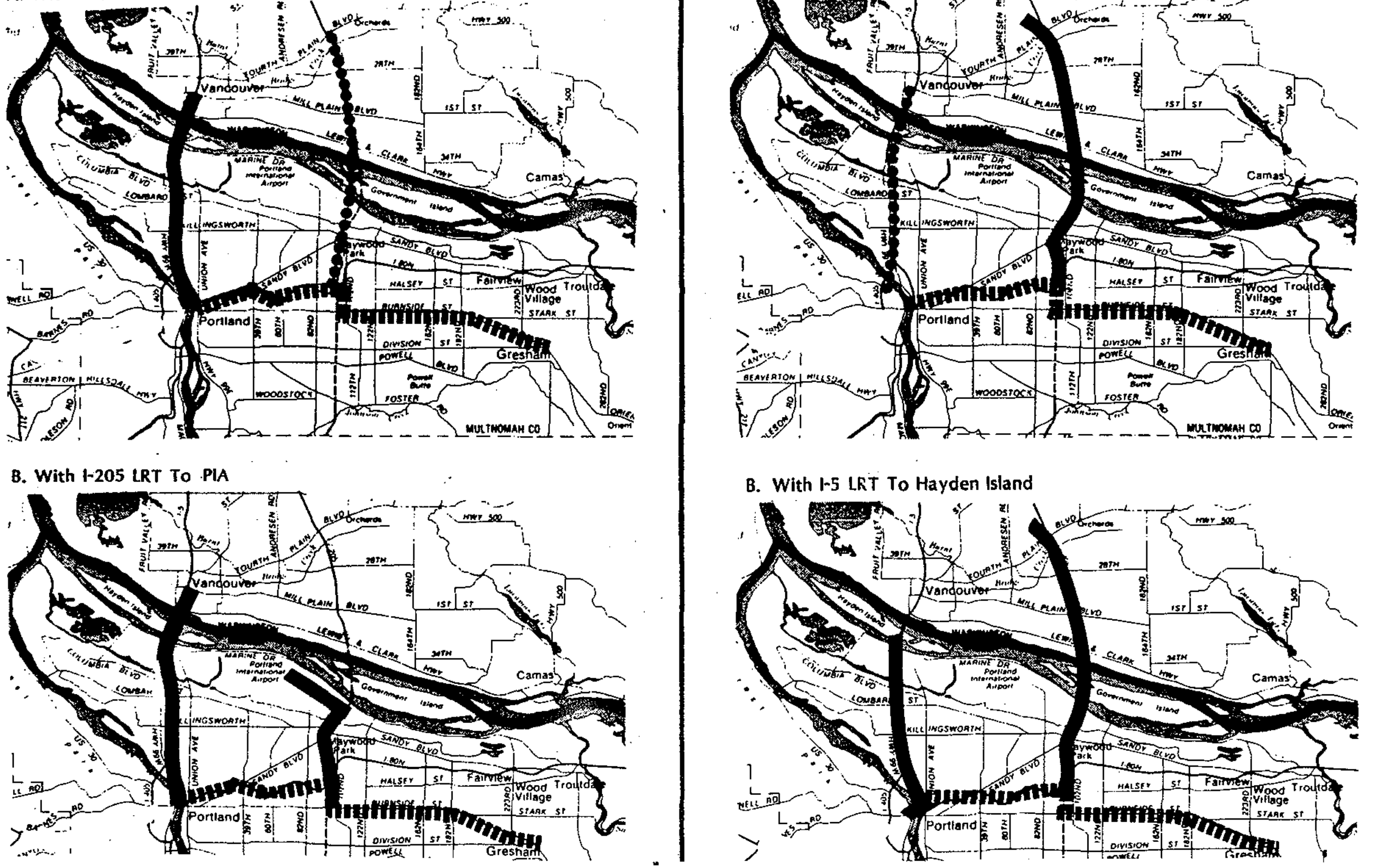
I-205 Corridor Crossing

A. With I-205 Bus Trunk

A. With I-5 Bus Trunk

B. With I-205 LRT To PIA

B. With I-5 LRT To Hayden Island



LRT Routes Evaluated — LRT Lines — Bus Trunk

REGIONAL LRT SYSTEM PLAN
Scope Of Work

I-5 & I-205 Alternatives

Figure 13

2. Barbur/I-5 Corridor Feasibility and Alignments, assessing the following alignments and their relationships:

   - Is LRT economically feasible in the corridor;
   - Which routes should be examined further in design and impact studies if LRT is feasible:
     - Barbur/I-5 alignment to Kruse Way and/or Tigard;
     - Barbur alignment to Kruse Way and/or Tigard
   - Is LRT economically feasible in the Macadam Avenue Corridor to Lake Oswego? Effect of this corridor on the Barbur/I-5 route and effect on Milwaukie/Lake Oswego route;
   - Impact of alternatives on 99W congestion through Tigard;
   - Phasing/staging of highway and transit improvements;

3. Circumferential Route Feasibility, by segments and as a package:

   - Beaverton to Tigard (economic feasibility and routing);
   - Tigard to Tualatin (economic feasibility and routing);
   - Tualatin to Lake Oswego (economic feasibility and routing); and
   - Lake Oswego to Milwaukie (economic feasibility and routing).

4. Relationships between corridors: Aimed at determining interrelationship between Hillsboro extension, Beaverton-Tigard connection and Tualatin extension.

D. <u>Eastside LRT System - Part Two - Extensions</u>

This phase of the Eastside LRT System study will evaluate "secondary" corridors, which are generally extensions or branches of the "primary" corridors evaluated in Phase "B."

Specific objectives of the Eastside LRT System Analysis - Extensions are:

1. Economic feasibility of McLoughlin LRT Extension to Clackamas Town Center and/or Oregon City, and/or Lake Oswego.

2. Economic feasibility of I-205 Corridor: Determine if LRT is justified in corridor, within various segments as noted below (independently and together):

   - Airport to Gateway
   - Gateway to Lents

- Gateway to Clackamas Town Center
- Gateway to Oregon City

3. Interrelationship between McLoughlin Extensions and I-205 corridor.

E. <u>Central Area LRT System Final and Regional Staging Plan</u>

This final phase of the Central Area LRT Study and development of the Regional Staging Plan will use the results of the more detailed corridor studies conducted previously to establish rational regional priorities for LRT corridors and to fine-tune ridership and resulting LRT and bus headways into the Central Area. Based on this, the objectives of this final phase of study are:

- Development of a Regional LRT Staging Plan identifying the priority of each regional corridor and conditions necessary for the development of each;
- Development of staging mechanisms for development of portions of the Central Area LRT Plan tieing Central Area improvements to the development of the six individual radial corridors;
- Finalize the Central Area LRT operations plan; and
- Resolve any alignment or engineering issues left unresolved in Part One Studies (Study Phase "A").

III. SPECIFIC STUDY TASKS

III. SPECIFIC STUDY TASKS

Tasks are described and listed in two parts; first, in this section, generalized tasks which are essential to the analysis for each subarea are listed. These tasks are repeated for each major subarea. Tasks specific to each major subarea--such as detailed engineering issues--are addressed in Section IV.

Tasks are detailed for each of the major products which the effort will produce. These are:

- Travel Forecasts: An estimate of the demand for transit and light rail travel in each system alternative, with interactions of the major alternatives for the total Eastside light rail system considered.

- Operating Cost Estimates: Operating costs will be estimated for an expanded bus network, as well as each corridor light rail alternative integrated into that overall system.

- Capital Cost Estimates and Conceptual Engineering: Capital costs will be developed via a sketch engineering effort, limited to the minimum level of detail necessary to accomplish the following:

    - To establish with reasonable confidence capital cost estimates for alignment alternatives (i.e., routing at grade or on structure, and resulting cost);

    - To identify fatal flaws of particular alignments (i.e., turn radius, grade or structural limitations, or major cost differences between alternatives);

    - To identify critical pieces of right-of-way which should be pursued.

  Conceptual engineering diagrams will not be produced for the entire length of alignments under consideration.

- Operating Analysis: For critical areas which could affect overall corridor feasibility, determine the operating characteristics of the regional LRT system.

- Generalized Impact Assessment: For each major light rail alignment general environmental impacts, as discernable at the conceptual engineering level, will be identified. Issues such as displacement, noise impacts, land development opportunities, or major impacts on the natural environment will be identified. This will allow significant impacts to be considered in selecting the preferred system.

- Evaluation of Alternatives: Combining the areas of information discussed above, the evaluation process will synthesize this information to reach conclusions of LRT feasibility corridor priorities.

A more detailed list of work tasks follows for each of these major work areas.

A. <u>Travel Forecast Development</u>

1. Develop detailed zone systems, allowing a thorough and complete ridership analysis, for each of the subareas investigated:

   - Bi-State Area Model: Detailing Clark County and North and Northeast Portland between Powell and the Columbia River;
   - the Oregon-Eastside Model: Detailing the Oregon portion of the metropolitan area east of the Willamette River, including Downtown Portland; and
   - the Oregon-Westside Model: Detailing the portion of the metropolitan area west of the Willamette River, including the inner-East employment areas.

   For each of these modeling systems, the following tasks will be performed:

<u>1980 Model Calibration</u>

2. Allocate 1980 Population and Employment data by zone.

3. Develop and code 1980 Highway Network.

4. Develop and code 1980 Transit Network

5. Calibrate travel forecasting models to replicate 1980 travel patterns.

<u>Year 2000 Travel Forecasts</u>

6. Allocate Year 2000 Population and Employment data by zone.

7. Develop and code Year 2000 Highway Network.

8. Develop and code Year 2000 Transit Networks for each alternative using the subarea modeling sytems.

9. Code each transit network design using UNET. For each of these networks, calculate coverage factors/station area population and employment in each zone affected by LRT station coverage.

10. Produce year 2000 transit and highway travel forecasts for each of the transit network alternatives discussed.

Products

1. Transit line loadings for each alternative;

2. Identification of key market segments of transit ridership (i.e., by major trip purpose and major destinations ridership from existing development vs. ridership from future development);

3. Transit network statistics for each alternative network (as necessary for determining operating cost, i.e., vehicle miles, vehicle hours, etc.);

4. Highway assignments to regionally significant facilities.

B. Operating and Maintenance Cost Estimates

For each transit network simulated, an estimate of operating and maintenance costs for the C-TRAN and Tri-Met systems will be developed via the following tasks:

1. Identify all routing changes between alternatives. The analysis will focus on the marginal changes in operating costs of routes in the corridor under detailed consideration.

2. Develop cost factors (for the year with the most recent and complete operating cost data) enabling calculation of operating costs separately for Tri-Met and C-TRAN (for the Bi-State analysis). Factors are to be on a cost per hour or cost per mile basis.

3. Refine network operating data from UNET as necessary to reflect daily operation, and consistency of operation between modes; size headway to serve demand. This will be performed for the routes which change between alternatives--focusing on the corridor under review.

4. Calculate changes in operating costs for each alternative transit network evaluated.

5. Calculate farebox revenue generated by each alternative.

Products

1. Operating costs for each network alternative and for each transit system, comparing various light rail alternatives to the all-bus alternative.

2. Refined network operations statistics (revenue vehicle miles, hours, etc.) for use in evaluating the efficiency of alternatives.

C. Capital Cost Estimates and Conceptual Engineering

Capital costs for this system-level analysis are to be developed only to discern major differences between alternatives and to provide the basis for comparing capital cost vs. operating cost of the alternatives. The conceptual engineering upon which these cost estimates are based is to be limited to the minimum level of detail to identify general costs and to identify "fatal flaws" of particular alignments. The detailed engineering issues to be evaluated are discussed in Section IV. Major tasks involved in developing capital cost estimates are:

1. Develop unit capital costs for:
   - LRT and bus vehicles;
   - Typical LRT sections:
     a. on its own ROW;
     b. in-street sections; and
     c. on-structure sections; other typical sections as may be needed.
   - Maintenance equipment and facilities (if needed);
   - Real estate (various categories);
   - Stations and station access (elevators, etc., if necessary); and
   - Park and Ride lots.

2. Develop conceptual engineering of alternative alignments--more detailed where questions of feasibility exist. Develop for the length of the alignments evaluated standard sections to be used for each segment, so that full capital cost estimates can be developed. Detailed engineering issues to be reviewed are listed in Section V.

3. Derive fleet requirements (bus and LRT) for each alternative (based on UNET statistics).

4. Develop total capital cost estimates for each of the alternatives.

5. Calculate annualized capital cost.

Products

1. Final fleet requirements (bus and LRT) and cost.

2. Identification of fatal flaws, and preliminary determination of engineering feasibility for LRT alignments.

3. Total and annualized capital costs for each alternative.

D. Operating Analysis

The operating analysis is focused only in locations where specific areas of operating feasibility exist, which is, for the most part, in Central Portland (Downtown and the inner-Eastside). Spot issues of operating feasibility may exist around suburban transit stations and bridge-crossings (analyzing one-track vs. two-track operation). Tasks involved in the operating analysis for areas where questions of operating feasibility exist are:

1. Based on the ridership forecasts, eastablish headways for each corridor necessary to meet demand.

2. Determine through routing possibilities, minimizing the number of trains in congested areas.

3. Determine the need for redundancy in LRT operations necessary to maintain safe and flexible service.

Products

1. LRT Operations Plan for areas where specific and potentially serious operating feasibility questions exist.

2. Definition of LRT and bus capacity for specific areas where questions of feasibility exist.

E. Generalized Impact Assessment

1. Identify sensitive areas that may be affected by each alignment alternative (such as wetlands, special habitat areas, neighborhoods, etc.) due to proximity, noise, vibration, etc.

2. Determine the approximate number of residences or businesses displaced by each alternative.

3. Assess the traffic impact/benefits of potential transit system expansion.

4. Assess, generally, traffic impact of potential high volume park and ride stations, and at-grade LRT intersections with major streets.

5. Identify areas with significant opportunities for public/private partnership, and for areas with potential for increasing investment through station area development programs.

Products

1. Identification of potential displacement of each alternative.

2. Identification of environmental "fatal flaws."

3. Identification of environmental impacts which any Phase II Alternatives Analysis would focus.

F. Evaluation of System Alternatives

The full evaluation of system alternatives will be undertaken as follows:

1. Develop cost-effectiveness comparison of capital vs. operating cost of bus vs. LRT improvement for various alternative systems and corridors.

2. Compile other pertinent impact and benefit comparison of alternatives.

3. Develop summary evaluation measures--as specified in Task 1.

4. Identify and develop priorities for corridors in which LRT appears justified by the year 2000, and identify those corridors in which future travel demand growth after the year 2000 is likely to justify LRT investment.

5. Coordinate the evaluation of alternatives through appropriate review committees, involved agencies and the public.

Products

1. Cost-effectiveness and impact evaluation.

2. Consensus on highest priority alternatives to be detailed in refined corridor studies.

3. Final report summarizing and documenting results of the study.

G. Community Involvement

While this is not a DEIS level process, the project will conduct public meetings, prepare press releases, and seek the views of interested neighborhoods and interest groups. This effort will include:

1. Public meetings with affected neighborhood associations, Chambers of Commerce, business associations, and local community groups.

2. Preparation of press releases for the regional and local press.

3. Conducting public hearings on project recommendations (for each major phase study).

4. Review of project recommendations by a regional LRT Citizen's Committee.

IV. IDENTIFICATION OF SUBAREA TASKS

IV. IDENTIFICATION OF SUBAREA TASKS

Each of the particular subareas into which the region is divided have specific study objectives and special issues upon which the determination of LRT feasibility is dependent. The specification of these subarea or corridor issues, and the detailed study tasks necessary to address these issues, follow.

A. Central Area (Preliminary - Phase I)

The Central area contains Downtown Portland and the inner-Eastside (west of 11th Avenue).

This phase of the study will address the ability of Downtown Portland and the inner-Eastside to handle six LRT corridors (the Banfield, Sunset, Barbur, McLoughlin, I-5 North and Macadam).

Questions to be answered by this phase of the Central Area Study are:

- Can the Central area accept a six corridor LRT system? If yes, proceed with analysis of individual corridors;
- If no, can the next priority corridor operate without a direct connection to Downtown?
- If no, which corridor(s) should be eliminated from LRT consideration?

After answering these questions, proceed with the Alternatives Analysis/DEIS step for the next priority corridor.

Tasks & Specific Issues

Tasks and specific issues which need to be addressed to accomplish Central area objectives are categorized as (1) Operating Issues; (2) Engineering Feasibility; and (3) Traffic. Each of these areas are detailed below:

Operating Analysis Tasks

A-1: Determine ridership into Downtown for each corridor.

A-2: Determine headways for each corridor necessary to meet ridership demands.

A-3: Determine through routing alternatives and balancing of corridor headways.

A-4: Determine redundancy needs in Central area operations.

A-5: Determine LRT capacity limitations (minimum allowable headway) at:

- bridges (Hawthorne, Broadway, Steel)
- LRT crossings at Columbia and Transit Mall, Morrison-Yamhill and Transit Mall, 1st and Morrison-Yamhill
- Each Downtown portal.

A-6: Mall capacity: bus and LRT operation.

A-7: No-Build capacity (with Banfield) for bus operation.

Engineering Feasibility and Design

Points where questions of engineering feasibility and major capital cost implications have been noted, and are listed below as engineering tasks specific to the Central area.

A-8: Inner-Eastside Connection: develop general alignment for the inner-Eastside connection, considering connections to the Banfield and Interstate LRT alignments in the North and to alternative South Corridor LRT alignments in the south.

A-9: Hawthorne Bridge and Water Street Ramp: determine the structural and geometric feasibility for LRT, and develop a cost estimate.

A-10: Steel Bridge: providing the Willamette River crossing for the Banfield LRT, the feasibility of other connections to or from the LRT tracks needs to be determined, specific concerns are:

- connection with a transit mall alignment via Glisan or Hoyt Streets (impact on Greyhound);
- turn radii to First Street; and
- LRT maximum capacity of Steel Bridge and ability to serve both Banfield and I-5 North trains.

A-11: Broadway Bridge: determine the structural and geometric feasibility of the bridge for LRT, and develop a cost estimate for the crossing.

A-12: Broadway Bridge and Transit Mall alignment: determine the costs and operating limits of a Broadway Bridge to Transit Mall connection, addressing the following concerns:

- turn radii: 7th to Hoyt (east and west);
- turns: Hoyt to 12th; and
- turns: Hoyt to 5th and 6th.

A-13: Determine the most feasible LRT operating pattern on the Portland Transit Mall, considering the following:

- Capacity limitations of mall alignment as conceptualized in Westside Corridor study;
- LRT vehicle demand from six radial corridors;
- Alternative mall routing schemes if needed.

A-14: Cross-Mall: determine for this, the Banfield LRT's major Downtown routing, the following:

- cost and feasibility of extending the cross-mall west to 18th Street, considering also the turn radii limits; and
- at 11th Street, determine the connection to the Banfield and turn radii limitations.

A-15: Water Avenue Alignment: structural and geometric feasibility and cost of bus transfer stations at bridge heads (Hawthorne, Morrison, Burnside) and in Coliseum area.

A-16: Hawthorne Bridge Connection: determine alignment of Hawthorne Bridge LRT to cross-mall and to Transit Mall (5th and 6th), considering the Sunset LRT Transit Mall connection via Columbia.

A-17: Barbur Corridor Downtown portal: determine the alignment and routing over I-405, and determine the feasibility of using one of the existing structures (structural and geometric feasibility), and cost of alternative I-405 crossings.

A-18: 5th and 6th (Transit Mall) and Morrison and Yamhill (cross-Mall): identify headway limitations on each couplet, as well as design, safety, cost implications.

<u>Inner-Eastside</u>

A-19: PTC/Inner-East connection: determine alignment, cost and feasibility of a railroad viaduct near 6th and Caruthers connecting the PTC and any inner-east routing.

A-20: Inner-East/Banfield Connection: determine alignment, feasibility and cost of alternative connections bridging the Banfield Freeway to connect with the Banfield LRT near Lloyd Center.

A-21: Coliseum Area: determine alignment and cost of connecting the Interstate LRT (Interstate Avenue or I-5 alignments) and the southern corridor LRT (PTC, McLoughlin and 17th Avenue alignments), via the Banfield LRT.

A-22: 7th or 8th and Holliday: determine the alignment and cost of connecting the inner-east line to the Banfield LRT.

LRT/Auto Traffic Conflicts

A-23: Mall (5th and 6th) conflicts with Burnside traffic.

A-24: Cross traffic conflicts at west end of Hawthorne Bridge.

A-25: I-405 bridges at south end of CBD (over I-405).

A-26: Broadway Bridge traffic impacts.

A-27: Hawthorne Bridge traffic impacts.

A-28: Cross-mall crossing of 4th, 5th, 6th and Broadway (LRT volumes above Sunset/Banfield LRT volumes).

B. Eastside LRT System Plan - Part One - Primary Corridors

The Eastside primary system combines a study of the Bi-State LRT feasiblity analysis with a feasibility analysis of LRT from Downtown Portland to Milwaukie. The Bi-State analysis will evaluate LRT in the I-5/Interstate Avenue corridor and the I-205 corridor.

- To determine the economic feasibility of LRT in the McLoughlin Corridor.
- To establish the economic feasibility of LRT in the I-5/Interstate Avenue Corridor.
- To identify the most feasible LRT Columbia River crossing to serve Clark County, I-5 or I-205.
- To identify engineering "fatal flaws" allowing the elimination of options and sub-options from further analysis.
- To determine the staging of transit and highway improvements in the McLoughlin Corridor.

Tasks & Specific Issues:

Work tasks and detailed issues to be addressed in this area of study are categorized as: (1) Travel Forecasting; (2) Operating Cost Estimates; (3) Capital Cost Estimates; (4) Generalized Impact Assessment; and (5) Evaluation of Alternatives.

Travel Forecasting

B-1: Develop and calibrate a detailed model for each of the areas shown on Figures 14 and 15 in accordance with the tasks outlined in Section IV. The Bi-State Modeling system, shown on Figure 15, will evaluate river crossings and service to and within Clark County. The Oregon-Eastside modeling area (Figure 14) will be used to evaluate the Southern Corridor alternatives and the choice of I-5 or Interstate Avenue alignments in the North Corridor.

B-2: Develop and code year 2000 Transit Networks as listed below:

- All-Bus Service expansion with Banfield LRT;
- PTC LRT: Milwaukie to Portland CBD;
- McLoughlin Boulevard LRT;
- 17th Avenue LRT;
- I-5 LRT to Vancouver;
- Interstate Avenue LRT to Vancouver; and
- Interstate Avenue LRT with PTC LRT and inner-Eastside connector.

B-3: Produce year 2000 travel forecasts for each of the transit network alternatives listed above.

Operating and Maintenance Cost Estimates

B-4: Develop changes in network operating statistics and resulting costs by mode for each of the corridors affected by the network alternatives listed above.

Capital Cost Estimates and Conceptual Engineering

Develop refined capital cost estimates and conceptual engineering for the following locations:

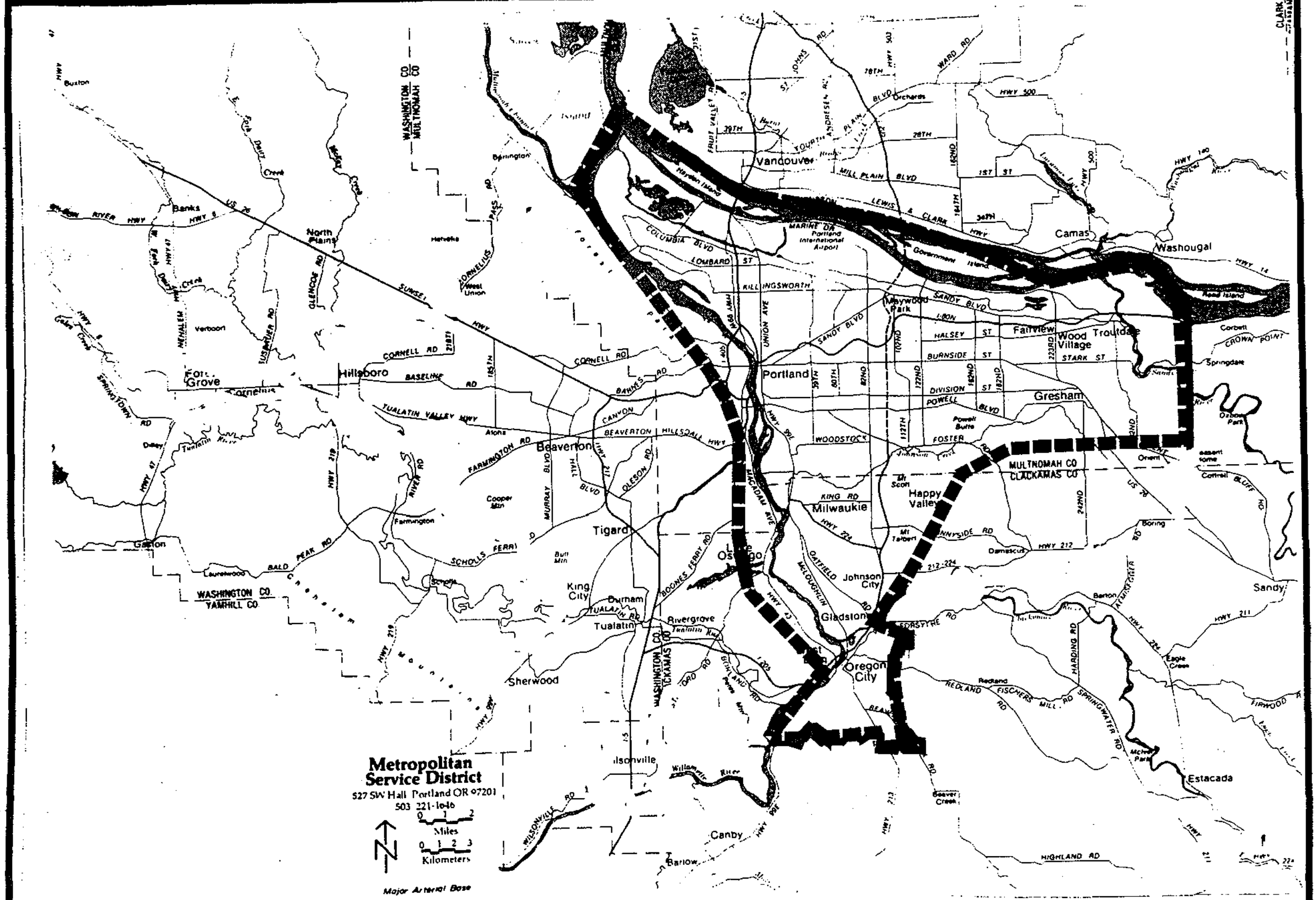
General Alignment Issues

B-5: Milwaukie to Powell: for each of the following alignments, determine a feasible route or routes, standard cross-section, and a cost:

- 17th Avenue alignment;
- PTC alignment; and
- McLoughlin alignment.

B-6: Hayden Island to Broadway Bridge and Interstate Avenue: for the two alternatives below, determine a feasible alignment:

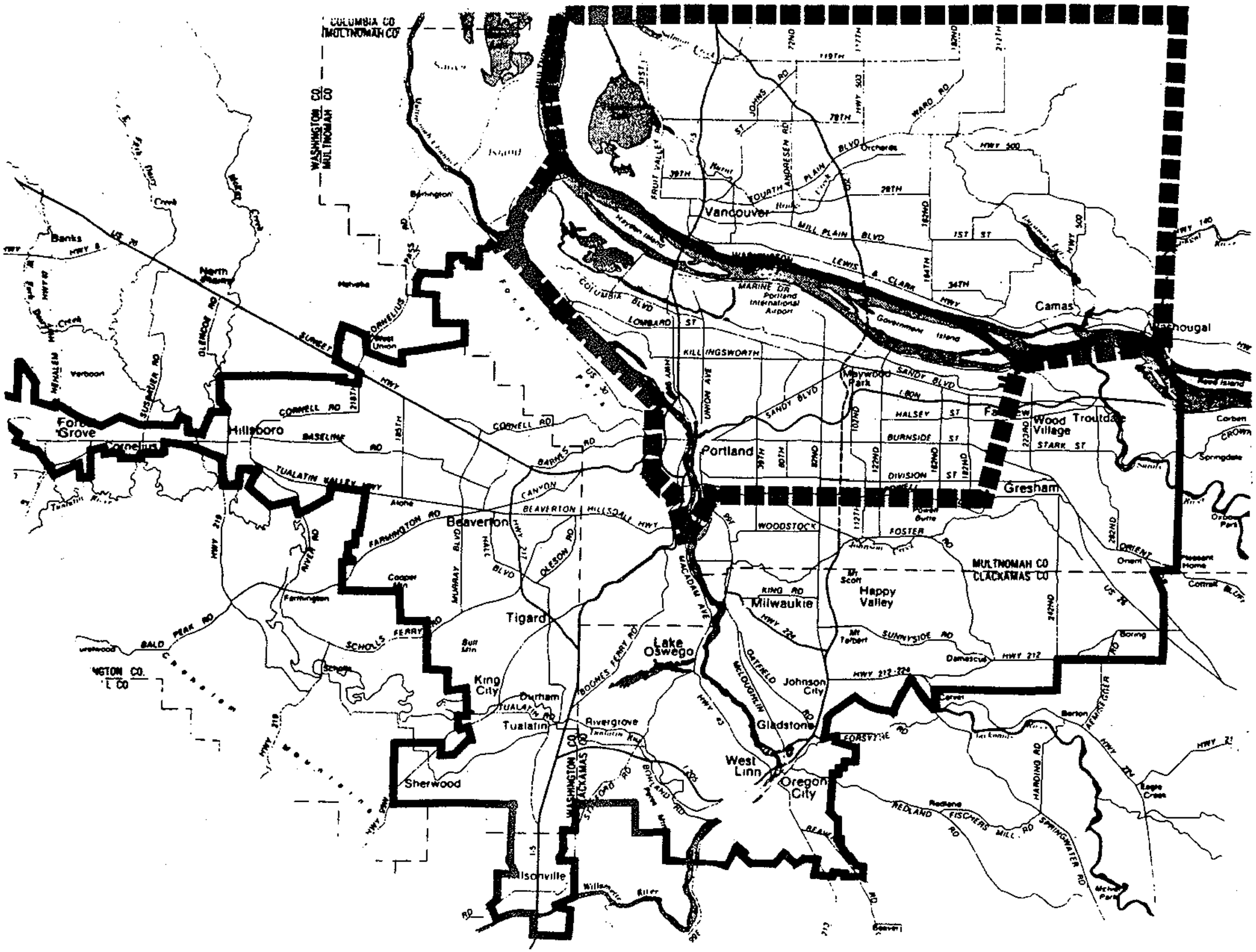
- Interstate Avenue alignment; and
- I-5 alignment.



REGIONAL LRT SYSTEM PLAN
Scope Of Work

Oregon-Eastside Sub - Area Model

Figure 14



REGIONAL LRT SYSTEM PLAN Scope Of Work	Bi-State Modeling Area	Figure 15

B-7: Hayden Island to Vancouver: determine routing, cross-section, and cost for the following terminus locations:

- Vancouver CBD terminus; and
- Hazel Dell terminus.

Locate an appropriately sized park and ride lot to serve each terminus considered.

B-8: I-205 LRT/Airport Way to Vancouver Mall: determine a feasible alignment for this segment of the I-205 LRT, and locate an appropriately sized park and ride lot to serve this alignment.

I-5/Interstate Avenue Engineering Issues

B-9: Interstate Avenue/I-5: Broadway Bridge to Coliseum: determine alignment and cost.

B-10: Interstate LRT: Denver Avenue at Columbia Boulevard/Railroad structure: determine the feasibility of using the existing Denver Avenue structure for LRT (and cost for conversion) versus the cost and feasibility of a new LRT structure.

B-11: Interstate LRT at the Slough Bridge: determine the cost and feasibility of the following Slough crossing alternatives:

- cost and feasibility of reusing existing I-5/Slough Bridge structure for LRT (cost);
- cost of a new structure; and
- structural and geometric feasibility of LRT sharing the new Slough Bridge.

B-12: Interstate LRT at the Columbia River: determine the cost and feasibility of the following Columbia River crossing alternatives:

- building a structure between the east and west Interstate Bridge structures, and the necessary approaches; and
- building a new structure to accommodate LRT.

B-13: Interstate LRT Stations North of Columbia Boulevard: determine alignment, feasibility, and cost necessary to accommodate stations at Marine Drive, and/or Delta Park and Hayden Island.

B-14: I-5 LRT: determine the feasibility and cost of the I-5 LRT from Hayden Island to the Fremont Bridge, identifying routing alternatives (median vs. side), structures to be rebuilt, etc.

I-205 LRT Engineering Issues

B-15: Glenn Jackson Bridge: determine the cost and feasibility (structural and geometric) of using the I-205 Columbia River Bridge for LRT.

B-16: I-205 to Airport Way Connection: determine the cost and feasibility of a structure connecting the I-205 transitway with the reserved LRT right-of-way in the median of Airport Way.

B-17: I-205 at Banfield Freeway: determine the cost and feasibility of a structure over the Banfield Freeway to the Gateway area.

B-18: Vancouver Mall terminus: determine the alignment from the I-205 median to Vancouver Mall area, including the cost and feasibility of required structure(s).

B-19: I-205/Banfield LRT junction: determine the alignment and cost of this junction.

South Corridor Engineering Issues

B-20: PTC/Ross Island Bridge station: Determine the cost and feasibility of a transfer station between LRT on the PTC right-of-way and buses on the Ross Island Bridge.

B-21: McLoughlin LRT: determine the limitations, cost and route implications likely due to rail conflicts in routing through the Brooklyn rail yards.

B-22: Locate an appropriately sized park and ride lot south of Milwaukie.

B-23: Cost and structural limitations of Johnson Creek Bridges (3).

B-24: Need to reconstruct Milwaukie Avenue overpass.

Impact Assessment

B-25: Neighborhood impacts of 17th Avenue alignment within Sellwood area (division of Sellwood neighborhood).

B-26: Impacts on Westmoreland Park of McLoughlin Boulevard alignment and possible transfer station at Bybee Boulevard.

B-27: Impact on schools in central Milwaukie area (Milwaukie Jr. and Sr. High Schools, three public or private elementary schools).

B-28: Impact on Willamette Greenway by development of the PTC right-of-way.

B-29: Impact of the PTC alignment on wildlife habitat areas.

B-30: Impact of the inner-east connection route on business access.

B-31: Impact of Interstate Avenue LRT on schools bordering the avenue (three).

B-32: Impact of Interstate Avenue LRT on business and residential access on the avenue.

B-33: Impacts of Interstate Avenue or I-5 LRT on habitat areas in the Columbia Slough and/or Columbia River areas.

C. Westside LRT System Plan

The Westside analysis will address in detail possible LRT alignments for the portion of the region west of the Willamette River. The timing of this analysis will allow decisions of the Westside Corridor project to become the basis for further LRT decisions west of the Sunset LRT terminus to Hillsboro and branches to Tigard.

The Westside analysis will consider the feasibility of LRT in the Southwest Corridor (Barbur and I-5), along Macadam Avenue to Lake Oswego, and circumferential connections between these radial corridors and the Sunset Light Rail alignment.

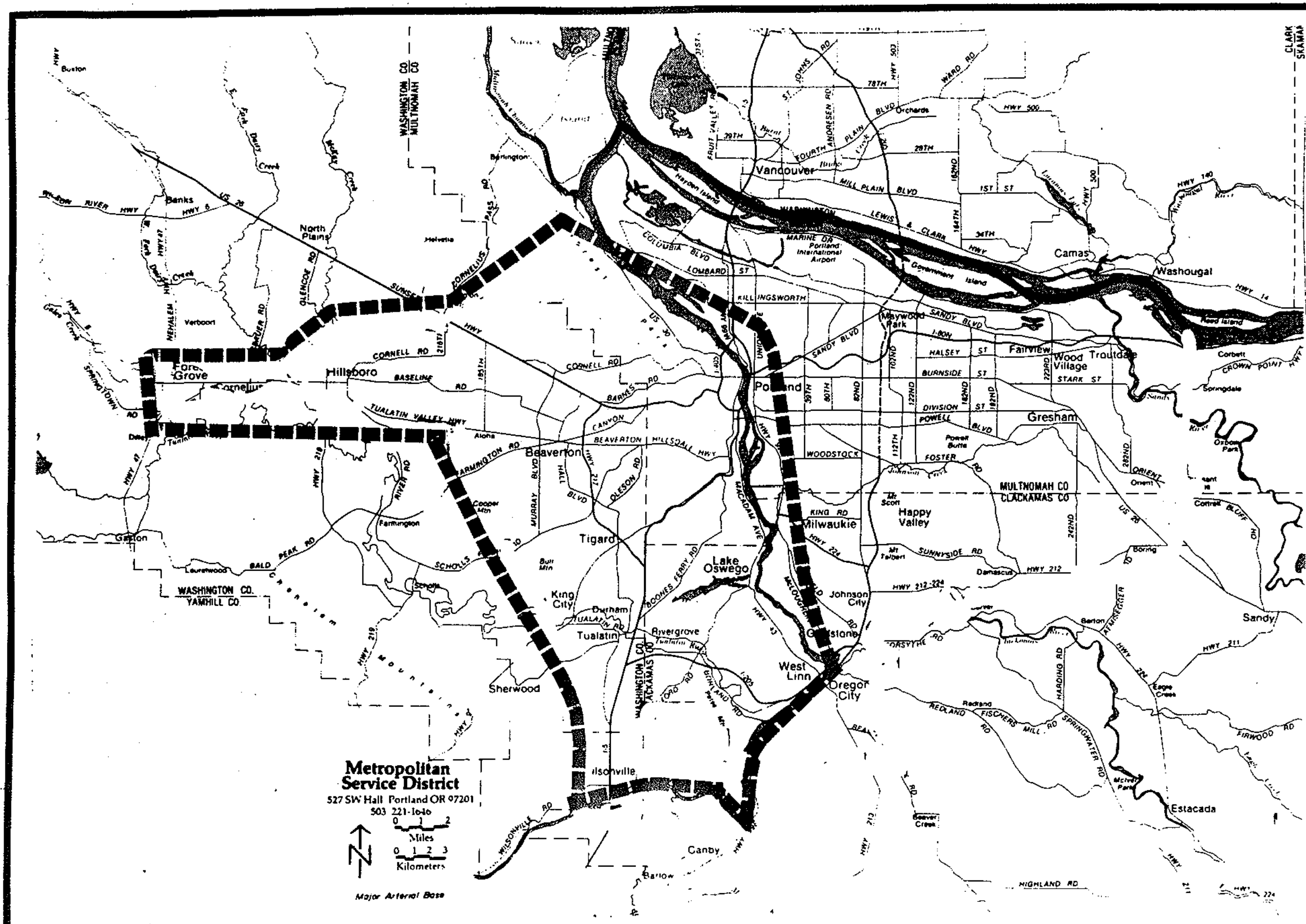
Tasks & Specific Issues:

Work tasks and detailed issues to be addressed in the Westside Area LRT systems study are categorized as: (1) Travel Forecasting; (2) Operating Cost Estimates; (3) Capital Cost Estimates; and (4) Impact Assessment.

Travel Forecasting

C-1: Develop and calibrate a detailed subarea model for the area shown on Figure 16, in accordance with the tasks outlined in Section IV.

C-2: Develop and code year 2000 transit networks to evaluate each of the LRT segments discussed above (specific network concepts have not yet been developed).



REGIONAL LRT SYSTEM PLAN Scope Of Work	Oregon-Westside Sub-Area Model	Figure 16

C-3: Produce year 2000 travel forecasts for each of the transit network alternatives listed which will be developed to address the issues listed above.

Operating and Maintenance Cost Estimates:

C-4: Develop changes in network operating statistics and resulting costs by mode for each of the networks evaluated.

General Alignment Issues

C-5: Barbur/I-5 South: determine a routing, standard cross-section, and cost for each of the alternative alignments:

- Barbur Boulevard;
- I-5; and
- to Tigard terminus/to Kruse Way terminus.

C-6: Beaverton to Tigard: determine alignment, cross-section, and cost.

C-7: Tigard to Tualatin: determine alignment, cross-section, and cost.

C-8: Lake Oswego Connections: determine routing, cross-section, and cost for the following connections to the Lake Oswego transit center:

- Macadam via rail right-of-way;
- Milwaukie via rail bridge; and
- Tigard via rail right-of-way.

C-9: Sunset Light Rail extension to Hillsboro: determine route cross-section and cost for candidate extensions to Hillsboro.

Barbur LRT Engineering Issues

C-10: Barbur at Front Street ramps: cost and feasibility considerations of alignments at Front Street interchange.

C-11: Barbur at Hamilton: cost and feasibility of alternative LRT alignments.

C-12: Barbur at Beaverton-Hillsdale Interchange: cost and feasibility of alternative LRT alignments, need for and cost of rebuilding interchange.

C-13: Barbur South of Beaverton-Hillsdale: cost and feasibility of widening or replacing timber structure over gulch.

C-14: Marquam Hill Tunnel: Evaluate the feasibility of a tunnel through Marquam Hill from the southern end of Downtown to Barbur Boulevard south of Hamilton, and the feasibility of that tunnel providing a station for the Marquam Hill Medical Complex (University of Oregon Health Sciences Center, VA Hospital and Shriners Hospital).

C-15: Barbur at Terwilliger: cost and feasibility of alignment options with the development of Burlingame transit station.

C-16: Barbur Boulevard Structures/Terwilliger to Tigard: determine the structural and geometric feasibility of LRT on, and/or the need to widen or replace the Barbur Boulevard structures at:

- Multnomah Boulevard;
- Spring Garden;
- Tryon Creek/26th Way;
- Capital Highway (and connection to Barbur Park and Ride);
- I-5; and
- Highway 217 (for Tigard terminus option).

C-17: Locate an appropriately sized park and ride lot on Barbur south of Tigard.

West-Circumferential Engineering Issues

C-18: Central Beaverton: alignment, feasibility, and cost of connection with Sunset Light Rail at the Beaverton Transit Station.

C-19: Central Tigard: alignment, feasibility and cost of connection with Barbur Light Rail at Tigard Station.

C-20: Washington Square: alignment and cost of routing to serve Washington Square transfer station (across Highway 217 from Railroad ROW).

C-21: Lake Oswego to Milwaukie Railroad Bridge: geometric and structural feasibility for LRT, and cost for any necessary upgrade.

Impact Assessment

C-22: Impacts on slope stability and vegetation of Barbur alignment (south of Beaverton-Hillsdale Highway).

C-23: Impacts on business and neighborhood access along Barbur Boulevard.

C-24: Impacts of Macadam route to Lake Oswego on neighborhoods surrounding route.

C-25: Impacts of Macadam route on vegetation and habitat areas along Willamette Greenway.

D. LRT System Plan - Part Two - Exentsions

Addressing the same general area as that discussed in Part "B" of this scope of work, this study subdivision will address the remaining Eastside LRT routing alignments, and consider the feasibility of extensions to the primary routes addressed in Part "B."

Objectives and Issues Addressed:

- Determine the feasibility of Milwaukie LRT Extensions to Clackamas Town Center, Oregon City, and Lake Oswego.

- Determine the feasibility of I-205 Corridor: Determine if LRT is justified in corridor, within various segments as noted below (independently and together):

  - Airport to Gateway
  - Gateway to Lents
  - Gateway to Clackamas Town Center
  - Gateway to Oregon City

Specific Tasks and Issues:

Detailed tasks specific to this subarea analysis are listed below.

Travel Forecasting

D-1: Apply the subarea model calibrated in Task B-1 to the alignment alternatives noted.

D-2: Develop and code year 2000 Transit Networks addressing the alignments listed above.

D-3: Produce year 2000 travel forecasts for each of the transit network alternatives listed above.

Operating and Maintenance Cost Estimates

D-4: Develop changes in network operating statistics and resulting costs for each network evaluated.

Capital Cost Estimates and Conceptual Engineering

Alignment Issues

D-5: I-205 South: determine LRT routing cross-section, and cost from Lents south to the Clackamas Town Center, and from the Clackamas Town Center south to Oregon City.

D-6: Milwaukie to CTC: determine LRT routing, cross-section, and cost from the Milwaukie Transit Station to the Clackamas Town Center.

Engineering Issues

D-7: Milwaukie East Across Highway 224: Alignment east from Milwaukie Transit Station crossing Highway 224.

D-8: Milwaukie South: Alignment design and cost from the Milwaukie Transit Station south to the proposed Lake Oswego and Oregon City extensions (including the junction of these two routes).

D-9: Clackamas Town Center Area: Design cost and routing in the Town Center area; including its junction with the I-205 LRT.

Impact Assessment

D-10: Impact of LRT alignments on business access in the Clackamas Town Center area, and in Central Milwaukie.

E. Final and Regional Staging Plan

Completing the work begun in Part "A," this phase of work will incorporate results of each of the detailed corridor analyses into the Downtown analysis. From these detailed corridor studies, updated bus and LRT headway information and ridership by Downtown portal will be developed.

Also, based on the detailed corridor analysis, a staging plan prioritizing each major regional corridor will be developed.

Objectives:

- Finalize Downtown LRT operations plan.
- Develop staging plan for all regional LRT corridors and the Central Area.

TASKS AND SPECIFIC ISSUES

Operating Analysis Tasks

E-1: Refine headways of LRT alignments into Downtown based on subarea studies.

E-2: Refine estimates of bus volumes in Downtown in addition to LRT volumes.

E-3: Refine through-routing schemes and necessary redundancy in Central area operations.

Staging Plan

E-4: Develop a staging plan for regional corridors based on the cost-effectiveness of each corridor, their contribution to the regional system, their ease of implementation, and supporting land use actions by local governments.

E-5: Based on assessment of the most feasible corridors, develop a plan staging for Central area LRT improvements, specifying the improvements in the Central area necessary with development of each radial corridor.

Engineering Feasibility and Design

E-6: Resolve any major outstanding engineering design issues left unresolved from the preliminary Central area analysis.

Auto Traffic Conflicts

E-7: Resolve any outstanding traffic issues left unresolved from the preliminary analysis.

V. BUDGET AND RESPONSIBILITIES

A. Schedule for Study Phases

The full Regional LRT System Plan will be divided into five phases--each scheduled as follows over fiscal years 1983 and 1984 (depending upon funding availability):

• Central Area LRT System--Preliminary	1983
• Eastside Primary and Bi-State	1983
• Westside	1984
• Eastside Secondary	1984 or 1985
• Final Central Area and Regional Staging	1984 or 1985

B. Funding Summary

The funding of both Metro and Tri-Met staff will be provided by on-going revenues for Transportation Planning--through the Unified Work Program (UWP). As such, the specific schedule for completion of the study phases is subject to annual funding availability. Funding for the Engineering Consulting tasks will be provided by a supplemental Interstate Transfer grant. The overall summary of funding for the entire plan effort--over the next two to three fiscal years--is shown on Table 1.

Specialized consulting engineering services will be required to address many of the issues identified, primarily utilizing three specialties: (1) traffic engineering; (2) soils engineering; and (3) structural engineering. Funding estimated to be necessary for supplemental consulting assistance in solving the major engineering issues identified with each corridor is summarized by issue area or task on Table 1, and by study phase on Table 2.

NM/srb
7358B/335
12/22/82

TABLE 1

FUNDING SUMMARY

	METRO	TRI-MET	CONSULTANT	TOTAL
I. Central Area--Preliminary (FY 1983)	$ 10,000	$ 50,000	$ 70,000	$130,000
II. Eastside Primary & Bi-State (FY 1983)	170,000	25,000	100,000	295,000
III. Westside (FY 1984)	153,000	25,000	65,000	243,000
IV. Eastside Secondary (FY 1984 or 1985)	70,000	25,000	15,000	110,000
V. Central Area-Final & Regional Staging Plan (FY 1984 or 1985)	20,000	25,000	0	45,000
TOTAL	$423,000	$150,000	$250,000	$823,000

NM/srb
7358B/335
12/28/82

V. BUDGET AND RESPONSIBILITIES

TABLE 2

SUMMARY OF ENGINEERING CONSULTANT TASKS AND RESOURCES REQUIRED

Related Task(s) Number	Engineering Issue	Traffic Engineer	Structural Engineer	Soils Engineer	Person Days	Budget
	Central Area:					
A-23, A-28	Downtown Traffic	X			53	$16,000
A-16	Hawthorne Bridge & Approaches	X	X		13	4,000
A-10	Steel Bridge & Approaches	X	X		7	2,000
A-11	Broadway Bridge & Approaches	X	X		40	12,000
A-17	5th & 6th Avenue Viaducts over I-405	X			13	4,000
A-8	Inner-Eastside Traffic		X		40	12,000
A-19	6th & Caruthers LRT Bridge over Railroad		X		10	3,000
A-20	6th Avenue LRT Bridge over Banfield		X	X	10	3,000
A-9, A-15	Hawthorne Bridge Station		X		10	3,000
A-15	Morrison Bridge Station		X		10	3,000
A-15	Burnside Bridge Station		X		10	3,000
A-15, A-21	LRT Structure from Water Street to Coliseum		X		10	3,000
A-20	Grand Avenue Viaducts over Banfield		X		7	2,000
	Central Area Total				233	$70,000
	Eastside - Part One - Primary Corridors:					
B-5	Milwaukie Corridor Traffic	X			33	$ 10,000
B-20	Ross Island Bridge Station		X		10	3,000
B-23	Johnson Creek Bridges (3)		X		10	3,000
B-21	Powell Boulevard Railroad Overpass		X		7	2,000
B-5	Access: Milwaukie T.C. to PTC		X	X	10	3,000
B-24	Milwaukie Avenue Overpass		X		7	2,000
B-6	Interstate Corridor Traffic	X			33	10,000
B-10	Denver Avenue Overpass at Columbia		X		10	3,000
B-10	Denver Avenue Bridge at Columia Slough		X	X	10	3,000
B-11	LRT Bridge at Oregon Slough	X	X	X	27	8,000
B-12	Approaches to Interstate Bridge	X	X	X	33	10,000
B-12	Interstate Bridge	X	X	X	50	15,000
B-14	I-5 from Slough Bridge to Interstate and Greeley	X	X	X	50	15,000
B-17	LRT Structure over Banfield at Gateway (I-205)		X		10	3,000
B-16	Columbia Boulevard Station: I-205 LRT	X	X		10	3,000
B-16	LRT Access Structure to Airport Way		X		10	3,000
B-15	Glen Jackson Bridge		X		3	1,000
B-18	LRT Access Structure to Vancouver Mall		X		10	3,000
	Eastside Total				333	$100,000

TABLE 2
(continued)

Related Task(s) Number	Engineering Issue	Traffic Engineer	Structural Engineer	Soils Engineer	Person Days	Budget
	Westside					
C-5	Barbur Corridor and Tigard Traffic	X			33	$10,000
C-10	Front Avenue Structures		X		13	4,000
C-16	Barbur Boulevard Structures		X	X	23	7,000
C-14	Marquam Hill Tunnel			X	33	10,000
C-5	Marquam Hill Traffic	X			17	5,000
C-8	Portland to Lake Oswego LRT	X	X	X	17	5,000
C-9	Sunset to Hillsboro LRT	X	X	X	20	6,000
C-8	Milwaukie to Lake Oswego LRT		X		13	4,000
C-6	Beaverton to Tigard LRT	X	X	X	13	4,000
C-7	Tigard to Tualatin LRT	X	X	X	10	3,000
C-8	Lake Oswego to Tualatin LRT		X		7	2,000
C-5	I-5 from Burlingame to Kruse Way	X	X	X	17	5,000
	Westside Total				216	$65,000
	Eastside - Part Two - Extensions					
D-8	Milwaukie to Oregon City LRT	X	X	X	27	$ 8,000
D-6	Milwaukie to Clackamas Town Center LRT	X	X	X	10	3,000
D-5	Gateway to Clackamas Town Center LRT	X	X		7	2,000
D-5	Clackamas Town Center to Oregon City LRT	X	X		7	2,000
	Eastside Extensions Total				51	$15,000
	Engineering Consultant Total				833	$250,000

NM/srb
7358B/335
12/28/82

STAFF REPORT

Agenda Item No. 8.3

Meeting Date January 27, 1983

CONSIDERATION OF RESOLUTION NO. 83-383 FOR THE PURPOSE OF ENDORSING THE REGIONAL LIGHT RAIL TRANSIT (LRT) SYSTEM PLAN SCOPE OF WORK AND AUTHORIZING FUNDS FOR RELATED CONSULTING ENGINEERING SERVICES

Date: December 23, 1982 Presented by: Andy Cotugno

FACTUAL BACKGROUND AND ANALYSIS

The attached resolution would establish the following:

1. An intent and process for defining a Regional LRT System and a conceptual work program, as outlined in the "Regional LRT System Plan Scope of Work" (attached), which:

   a. Emphasizes determining the economic justification for LRT vs. bus in each corridor and completing "Phase I Alternatives Analysis" for those corridors (Most specific alignment questions would be deferred to the next major phase of study--Alternatives Analysis/DEIS);

   b. Involves four major study steps over a two- to three-year study period with specific study timing subject to the annual adoption of the Unified Work Program (UWP) and funding availability. The six areas are:

      1) Central Area - Preliminary Plan;
      2) Eastside Primary Corridors (Milwaukie and Bi-State Corridors);
      3) Westside and Southwest Corridors;
      4) Clackamas County Corridors;
      5) Central Area--Final Plan; and
      6) Regional Staging Plan.

2. An intent to form a citizen's committee with a specific charge and membership to be established at a later date; and

3. Allocation of $250,000 of Interstate Transfer funds to consultant assistance for the Regional LRT System Plan, amending the UWP and the Transportation Improvement Program (TIP) accordingly, and authorizes application for those funds.

The UWP contains funding for Metro and Tri-Met staff to conduct the Long-Range Transitway Plan - Phase I. An overall scope of work for this effort--to result in a Regional LRT System Plan--has been developed and is shown as Attachment A. The scope of work details tasks necessary for completion of the entire regional effort over the next two to three fiscal years (depending on annual UWP funding availability). Major points of this scope of work have been reviewed previously by TPAC, JPACT, the Regional Development Committee, and the Bi-State Policy Advisory Committee. Funding for Metro and Tri-Met staff for this project will be determined through the annually adopted UWP. To supplement those Metro and Tri-Met staff activities, the scope of work for the Regional LRT System Plan identifies specialized consulting engineering services necessary to develop confident capital cost estimates and engineering feasibility analysis. These consulting engineering services would be oriented toward specific issue areas--where major questions of engineering cost and feasibility exist--and are estimated to require $250,000 for the entire multi-year effort. Tri-Met, Metro, and consulting engineering resources estimated to be necessary to complete the Regional LRT System Plan are summarized by project phase on Table 1. The detailed resource estimates by engineering issue area are shown on Table 2. Tri-Met would be responsible for directing these consulting services.

The source of funds proposed for the consulting engineering portion of the Regional LRT System Plan is the Interstate Transfer "Regional Reserve" accrued from the escalation on the Metro Systems Planning Allocation authorized in November, 1979 (Resolution No. 79-103). Local match will be provided through Tri-Met by provision of in-kind services devoted to the Regional LRT System Plan.

TPAC recommended adoption with language to clarify that the overall "intent" is adopted to allow grant applications to proceed with details to be further defined.

JPACT reviewed the project and recommended approval of the Resolution.

EXECUTIVE OFFICER'S RECOMMENDATION

Adopt the attached resolution which:

1. Endorses the Regional LRT System Plan Scope of Work as a conceptual framework for defining a Regional LRT Plan; and
2. Authorizes $250,000 from the Interstate Transfer "Regional Reserve" accrued on the Metro Systems Planning Allocation to fund consulting engineering services for the Regional LRT System Plan;
3. Amends the UWP and the TIP to reflect this authorization; and
4. Authorizes the application for the $250,000 in Interstate Transfer funds and the execution of related grants and agreements.

COMMITTEE CONSIDERATION AND RECOMMENDATION

On January 10, 1983, the Regional Development Committee unanimously recommended Council adoption of Resolution No. 83-383 with the amendments as proposed by TPAC and incorporated herein.

NM/glb-7447B/327
01/14/83